Telephony.

THE AMERICAN TELEPHONE JOURNAL

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Serving Half a Million Customers by Telephone.

One of the largest private telephone systems used in connection with any one business in Chicago is operated by the Peoples Gas Light & Coke Co. The business which the gas company is enabled to transact with its more than half a million patrons over the telephone, according to a recent official statement, requires the services of no less than 11 operators at the big private branch exchange switchboard in addition to upwards of 100 assistant clerks in the customers' service departments, who are provided with head telephone sets.

When a customer calls up the gas company and asks for information concerning a pending order, the setting of a meter, or a matter which requires the visit of a company representative, he usually gets an answer to his inquiry *in less than one minute*. Fifty seconds is the average time taken by the gas company to answer from 600 to 1,100 telephone requests for information received every day in the year.

Practically all the data which the company needs as reference in connection with this vast business, transacted by telephone, is kept in filing cabinets. The information in these cabinets is duly classified and indexed and each and every section of every cabinet is in charge of a clerk working with a telephone receiver attached to his or her head.

There are hundreds of cabinet drawers containing meter information—there are hundreds of others containing information covering visits to premises, and still more hundreds containing information covering pending and executed orders. These cabinets all together cover almost one acre of floor space in The Peoples Gas Building, and each and every clerk in charge of every section is busy constantly transmitting, through the telephone fastened to his head, the data and information which he has at his finger tips.

These telephone clerks become so proficient in their work that mistakes are comparatively rare and an average of more than 30,000 calls per month are said to be actually handled with less than one-tenth of one per cent. error.

All the telephones used in connection with this wonderful service are, of course, linked up with department heads and with other telephones in the sales and operating departments.

Orders received at outlying stores are transmitted by telephone to a force of clerks and telephone operators at the main office as rapidly as they are booked; the very late orders are even transmitted to a night shift of operators. All these orders are duly made out and once more transmitted by telephone to the shops, where the work is planned and laid out that night for the workmen to take up the next morning.

In brief, The Peoples Gas Light & Coke Co. has taken full advantage of the possibilities of the telephone to perfect a system of service to customers that is said to be unequalled in the business world.

Putting the Pay Station Beside the Track.

Progressive telephone companies the country over have been quick to realize the revenue possibilities of the pay station in the local railroad depot and a live town without these facilities is now hard to find. But now and then one passes through a fairly large city in which no platform pay stations are provided for the use of train passengers and persons obliged at the last moment to communicate with home or office. In one representative Massachusetts city of over 100,000 inhabitants, the focus of several railroad trunk lines passing through a union station of recent erection and fine appointments, a first class private branch telephone exchange and public station is provided downstairs off the main waiting room, but not a single instrument is available on the commodious train platforms.

There is no question that the company would derive a good deal of revenue from one or two sets located beside the train berths, since every passenger train run through the town makes a stop of usually five minutes at the station, and passengers often alight from trains during the stop period desiring to call up business houses or personal friends before proceeding. The location of all the pay stations elsewhere makes it unsafe to leave a train for such purposes. It is a safe estimate that a well advertised pay station service equipped with an illuminated sign or emblem on the platforms would yield the local company a latent revenue not now suspected.

We're Marching Onward—Come Along

By HERBERT KAUFMAN

A Scandinavian has learned to take a hunk of air and change it into a lump of nitrate. His factory is producing fifty things hidden in the atmosphere, waiting for determination and ingenuity to come along and put them to work.

A Manchester weaver has, after years of plugging and striving, of experimenting and failing, and going back at it again, found a solution which transmutes cotton into imitation wool and is producing a cloth with all the characteristics of the sheep-grown variety. Besides serving all practical purposes of the more costly fabric, it is non-inflammable.

Marconi is hinting that his wireless telephone will be ready for the market before many moons, and direct conversation will soon be a matter of course between a pair of business men respectively in Halifax, Nova Scotia, and Halifax, England. A Russian aeronaut is running a line of seven-passsenger sky-cabs, and looping the loop above the clouds has already lost the thrill of novelty.

Physicians need no longer puzzle over the mystery of the digestive functions. They have contrived to expose the stomach of a living man and have taken a series of motion pictures showing the gastric juices on the job with every type of food.

So many huge "ifs" and enormous "whys" are being kicked into the middle of next week that the inability to solve such puny problems as self-support, or the maintenance of a family, is incomprehensible.

We have no sympathy to waste on men who fail at big undertakings, much less trifles. Your father not only made a living but provided for you besides. We not only expect you to be his equal but his superior, because we've made life so much broader, multiplied your possibilities, reduced your handicaps, and exposed a thousand chances for welfare which he could never view.

Achievement extends, it does not diminish, opportunity. In proportion as inventions, formulae, systems and discoveries are revealed, every man's outlook is correspondingly widened. Every time a great truth is established, a new rule is provided, a new tool is perfected, a new community built, a new waste opened for settlement, each of us is enriched with just so many more ways and means of attaining success, where our predecessors were menaced with failure through lack of competent information and need of virgin field for exploitation.

The performances of pioneers, scientists and mechanics gain magnitude as the world gains in knowledge. If civilization could be nurtured to its existent state of efficiency by means of the crude devices and nineteenth century ignorance of the manifold forces accessible to millions today, the coming years should and will be signalized with feats of intellect and ingenuity which even the most optimistic prophet cannot anticipate.

If you aren't superior to one of yesterday's geniuses, you don't count. Progress constantly sets her mark higher; that's the only way by which the world can be stimulated to excel its past best.

We're going on—better come along. There's lots of room in front. All the chances are there. The struggle is back where you are. People, who won't think and dare, will find their plight sterner every day. It's so easy to get good machines to supplant listless, dull, unambitious human workers that we have neither time nor money to waste on those who won't use themselves to the utmost of their possibilities.

All the tense competition—all the struggle, the strain, the bitter strife, the mean and sordid scrambles for existence, are confined to the doubters and quitters and cowards who lack faith even in the face of the twentieth century's prodigality. The longer you stay "down there" the poorer the pickings will be.

Climb with the rest of us! Believe that you can do more and you'll begin to get your due.

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Independent Ass'n of America Disapproves Bell Contract

Directors of Independent Telepone Association of America at Meeting in Chicago, April 11, Adopt Resolution Advising Member Companies Not to Execute Contract for Modified Toll Service Offered by the American Telephone & Telegraph Co.

The directors of the Independent Telephone Association of America, at a meeting in Chicago on April 11, adopted resolutions recommending that members of the association refuse to accept the contract offered by the American Telephone & Telegraph Co., for connection with its lines, as published in TELEPHONY of March 21.

A committee was appointed to draw up a form of contract which will cover all points the association considers essential for an agreement for connection with the American Telephone & Telegraph Co. The members of this committee are: C. B. Randall, St Paul, Minn., B. G. Hubbell, Buffalo, N. Y., John H. Wright, Jamestown, N. Y., Walter H. Uhl, Logansport, Ind., H. Linton Reber, St. Louis, Mo., and President E. B. Fisher and Secretary W. S. Vivian, members ex-officio.

The procedure of the committee will be to analyze and arrange in logical order, all the objections to the contract that have been filed with the association. A draft will then be made of a modified form of contract to be submitted to the directors of the association at their next meeting, to be held probably next week. After the modified contract form has been approved by the board of directors, it will be taken up with the A. T. & T. Co., and the United States Department of Justice. The committee will be glad to receive suggestions from Independent operators as to any points relating to the contract.

The action at this meeting was taken after about a month's consideration of the contract. On March 14, the directors of the association met in Chicago with N. C. Kingsbury, vice-president of the A. T. & T. Co., and other Bell officials, at which time the details of the form of contract offered by the A. T. & T. Co., were announced, and explanations made by Mr. Kingsbury. The directors of the association, after considering the contract, deferred action, taking the matter under advisement until another meeting.

During the discussion of the form of contract submitted by the A. T. & T. Co., Secretary Vivian stated that about 200 letters had been received from members of the association and others, opposing the form of the contract.

Many inquiries have been received by the association relative to the indorsement of the agreement and contract by the government, asking if the government officials had really indorsed it. Secretary Vivian accordingly wrote the Department of Justice and received a reply signed by G. C. Todd, assistant to the attorney general, which be read at the meeting. It says:

"The department has not approved or disapproved the contract for connections offered Independent telephone companies by the A. T. & T. Co.

"Only in the advent that the proposed contract appeared not to carry out the undertaking of the Bell companies as expressed in their letter of December 19 last, would this department be called upon to take any action in respect of it."

A committee consisting of W. H. Bassett, of St. Louis, Mo., W. F. Goodrich, of La Crosse, Wis., and Wm. S. Paca, of Oil City, Penn., was appointed to study and report on the proposed Interstate Commerce Commission's system of accounting for Class C companies.

On account of the prolonged illness of Richard A. Valentine, treasurer of the association, H. L. Beyer was appointed assistant treasurer.

Those present at the meeting included E. B. Fisher, Grand Rapids, Mich., H. L. Beyer, Grinnell, Iowa, D. M. Neill, Red Wing, Minn., B. G. Hubbell, Buffalo, N. Y., C. B. Randall, St. Paul, Minn., Frank Binkley, Hamilton, Ohio, H. Linton Reber, St. Louis, Mo., R. R. Scott, Columbia City, Ind., D. E. Fuller, Clyde, Ohio, J. H. Wright, Jamestown, N. Y., W. B. Given, Hazelton, Pa., C. B. Cheadle, Joliet, Ill., J. M. Storkeson, La Crosse, Wis., W. J. Uhl, Logansport, Ind., L. A. Herrick, Freeport, Ill., J. B. Edwards, of the Kellogg Switchboard & Supply Co., Chicago, and H. A. Harris and W. F. Benoist, of the Automatic Electric Co., Chicago.

RESOLUTION ADOPTED BY DIRECTORS OF INDEPENDENT TELEPHONE ASSOCIATION OF AMERICA, APRIL 11, 1914.

Whereas, the proposed form of qualified connecting contract submitted by the American Telephone & Telegraph Co. to this association was referred to every member thereof, and

Whereas, not a single member approved of the qualified connecting contract, but several hundred strongly condemned the same as being unfair to both the public and Independent operating companies.

Be It Resolved, by the board of directors of the Independent Telephone Association of America:

1. That the association recommends that none of its member companies execute the contract for "qualified toll service," offered by the American Telephone & Telegraph Co.

2. That a committee of five be appointed by the president to draft a form of contract for such toll connections embodying therein the views of this association and remedying the objections to the form offered by the American Telephone & Telegraph Co.

3. That said committee be given full power to act in so far as it consistently can for the association in negotiating a modified form of contract and to confer with the American Telephone & Telegraph Co. to that end, also to confer with the Federal Department of Justice at Washington, to secure, if possible, its co-operation in securing such a modified form of contract.

4. That said committee be uninstructed as to the form of such modified contract.

5. That the president and secretary be ex-officio members of the committee.

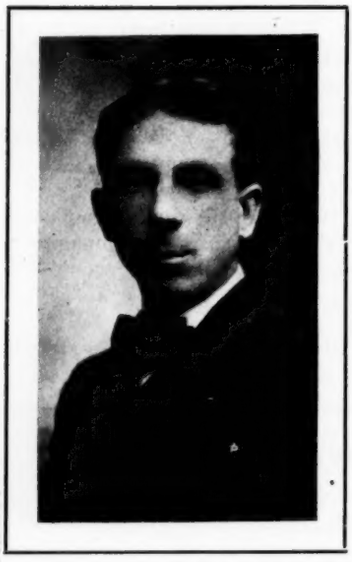
Baseball Schedules and Timetables in Detroit Directory.

The new Detroit telephone directory of the Michigan State Telephone Co., contains innovations in the form of a baseball schedule and railroad timetables.

Telephone Advertising that Brought Results in Small City

Experience of the Manager of a Telephone Company in a County Seat Having a Population of 6,000, Conclusive Evidence that Thoughtful Advertising is a Profitable Investment—Some of the Advertisements that Gained New Subscribers for the Company

By W. E. Hutchens



The telephone manager who has brought his development up to 10 or 12 per cent. finds that new business comes slowly and that no small problem confronts him in his efforts to increase his number of contracts.

The saying, attributed to Emerson, "If a man writes a better book, preaches a better sermon, or makes a better mousetrap than his neighbor, though he builds his home in the wilderness, the world will make a beaten path to his door," may have been true in Emerson's time, but pity the man who follows such principles in this day.

No business succeeds unless it is advertised, and well advertised. Some persons will say, "Why advertise the telephone business, for what man, woman or child is in your city who does not know that a telephone exchange is in operation?"

Investigation will show that many people are living in your city who never give the telephone exchange a single thought. Others have discused having a telephone installed, but have reached no definite conclusion. How often a contract is obtained by simply suggesting to a man that he needs telephone service!

You cannot hope to reach the non-subscriber personally, but by advertising you can reach the great majority of them. Too long have telephone companies been content to sit idly by and permit business to drift in. Even the absence of competition will not justify such action.

After all, the question is not, "Shall we advertise?" but "How shall we advertise?" There is no better medium than your daily papers. As a manager, you know local conditions better than any other person and your efforts must be governed accordingly.

Two things are essential to your campaign: First, you must be able to deliver the type of service you advertise; second, your advertisements must be so written as to attract attention.

No manager should attempt to advertise his business, until he has brought his service up to the highest possible standard. You would not expect a non-subscriber to be attracted by what you say, if you yourself do not believe it.

Honesty in advertising will pay, just as it does in any phase of business. If your daily service tests show what they should, you will have little trouble in producing advertisements that will bring results. Do not make yourself believe that anything will do. It will not. It is no small task to write advertisements that will bring results Be original. Parrot work will not do. Be governed by your local conditions. Give the subject thought and it will pay.

It is not necessary to always appeal to the public for new business. The fact that you constantly keep your business before the public eye is essential. Articles explaining the various types of service will bear fruit in course of time.

The following advertisement brought many favorable comments from the public:

YOU CAN TEACH A PARROT TO SAY
"HELLO"

But he won't know what he is talking about.

NEITHER

Will the party calling you over the telephone know to whom he is talking when you answer

"HELLO"

Why not answer all telephone calls by stating either

1. **The telephone number,**
2. **The name of the firm, or**
3. **The name of the party answering,**

And Save Valuable Time and Needless Questions and thus help to make the service More Satisfactory.

Won't YOU make an extra effort throughout the New Year to help eliminate the meaningless term

"HELLO"

Advertising alone will not suffice. Personal effort on the manager's part and on the part of every employe is necessary to bring success, but advertising often closes contracts which personal effort has stimulated. I know that most people think the reverse is the truth, that personal effort is nearly always necessary to close contracts which advertising has stimulated. That was my belief and I was agreeably surprised to find that advertising would close contracts.

Before publishing a new telephone directory an ad similar to the following will bring new business:

COPY
For the New Telephone Directory Will Close
MAY 15, 1914.

Now is the Time to contract for Service
That YOUR NAME may appear
In the new Issue

My experience has taught me to believe that it is as necessary to advertise a telephone busines as it is to advertise any other line. It is one way to turn an anvil chorus into one singing pæns of praise.

Here is an advertisement that brought three new contracts the day following its publication in a local paper:

SERVICE

A Small Word With a World of Meaning

We Are Offering You Service
Twenty-Four Hours of the Day

Why Not Contract Now?

The following appeared in an evening edition delivered to patrons at 5 p. m.:

DO YOU SPEND
5 Cents a Day
Foolishly?

Listen! That sum will furnish your home with telephone service.

THINK IT OVER.

At 7 p. m. the same day a man called at the office and said: "I have just found out how I may have telephone service in my home. I want an instrument installed in the morning."

The following six-inch, double-column advertisement brought out results that were astonishing:

WHY
Use Your Neighbor's Telephone
WHEN
You May Have One in Your Own Home at Little Cost?
WHY NOT CONTRACT NOW?

[Editor's Note—Mr. Hutchens is one of the Independent company managers who believes the man in touch with local conditions is the man best fitted to plan an advertising campaign. He put his ideas into practice in Hartford City, Ind., which is a county seat town and has a population of more than 6,000, and the returns for December, the month in which the campaign was started, were greater than all the new business obtained in the eleven months preceding. He does not offer the outline of his ideas as a model either in methods or copy, but simply as a record of what was done in Hartford City, and worth passing along because of what it accomplished.]

Telegraph Companies to Enter Telephone Field.

Announcement is made that the Postal Telegraph Cable Co. and the North American Telegraph Co. will enter the telephone field in competition with the American Telephone & Telegraph Co., for long distance business. Work has been begun on a line between Denver and Salt Lake City which will give long distance telephone service between Denver and the Pacific coast, via Salt Lake City, over the wires of the Postal company. This line, it is stated, will be ready for service in five months. In reference to the service Charles M. Baker, division general superintendent of plant of the company at Chicago, recently stated in Denver:

"We are preparing to start general telephone service in the territory covered by the Postal lines. During the last year we have expended $2,000,000 in extending lines and every new wire that we have strung has been transposed so as to render it available for use for telephone service while the wire is in use at the same time for telegraph service. We have just started work on an extension we are building from Cheyenne to Salt Lake City along the right of way of the Union Pacific. We are building this line to supplement the other through lines we now have to the Pacific coast. This line is being equipped for telephone use and will connect with the long distance telephone service we now have between Salt Lake City and the Pacific coast, and between cities on the Pacific coast.

"Will the Postal enter actively into the telephone field and establish local telephone exchanges?"

"We are equipping our system so that we can."

"Is it the purpose to establish a local exchange in Denver and other points in Postal territory?"

"That purpose is under advisement."

The Postal company has built copper transposed wire circuits within the last year between the following points: Kansas City to Galveston, including San Antonio, Dallas, Fort Worth, Houston; Galveston to New Orleans; Kansas City to Sherman, Texas; Memphis via Hot Springs and Texarkana to Dallas; Texarkana south to connect with the New Orleans line.

"The service from Chicago west," said Curt A. Comstock, district superintendent at Chicago, to a Milwaukee, Wis., reporter, "will be started as soon as the equipment can be secured, and will be at the same low proportion of rates now being charged in the west.

"Where the Bell lines charge $3 we charge 50 cents in the district from Denver west. We offer no physical connection, however, with private subscribers, all telephoning by these rates being through private booths at our offices."

In an interview at St. Paul, vice-president A. S. Harris, of the North American Telegraph Co., said that the office of D. G. McIntosh, Minneapolis, would be connected with the main office in Chicago for public service. The route selected for the Chicago connection is along the company's telegraph line on the Soo Railroad.

America Extreme in Regulation, Thinks London Times.

In a recent editorial concerning the dissolution of the United States Express Co., the London Times points out the danger of going too far in the matter of government competition and control. In reference to the express companies, it says:

It was right that they should be regulated under public supervision, that the government should organize a national parcel post, that a thorough reform of methods should be forced upon them by the Interstate Commerce Commission, and that the railroads should be stimulated to develop fast and efficient freight services of their own. But it is clearly wrong when state competition and state regulation are carried to the point of forcing private companies to dissolve their organization and throw their employes out of work.

Few economists would care to lay down a hard and fast line for limiting either the commercial activities of a government or the degree of control it ought to exercise over private enterprise. But still fewer would applaud a policy that, initiated avowedly in the public interest, is developed to the extreme of making individual or joint stock undertakings unprofitable and therefore impossible.

Americans are comparatively late comers to this class of problems. After allowing "big business" to flourish unchecked too long, they are now perhaps tempted to regulate it too much. Having suffered excessively from the abuses that attend the private management of public utilities, they are now embracing somewhat hastily the idea of governmental ownership and operation.

They will find, as we have found in Great Britain, that the latter policy has dangers and pitfalls of its own. Of some of them we are reminded by the announcement that the final distribution of the assets of the National Telephone Co. will be made toward the end of the month.

It is hardly open to question that the backwardness of telephone development in Great Britain has been mainly due to the jealous and obstructive attitude of the postoffice and that the threat of compulsory purchase by the state prevented all healthy expansion and resulted in the congested system with which we are saddled today.

The electric supply industry has been and still is another and conspicuous victim of bureaucratic, in this case municipal, competition and repression. The blameless purpose of safeguarding a community against the exactions of a private monopoly too often results in depriving it of a needed utility.

Advertising Campaign of Southwestern Bell.

How to use a telephone most successfully, is the subject of advertisements to be printed twice a week for four months by the Southwestern Telegraph & Telephone Co. of Missouri.

Old Time Independent Iowa Telephone Men.

At the eighteenth annual convention of the Iowa Independent Telephone Association, held last month at Des Moines, there were only four men who were present at the first convention of the association 18 years ago, which was held in the same city. These men, whose likenesses are shown in the accompanying illustration, are: E. H. Martin, Webster City, Iowa; J. S. Bellamy, Knoxville, Iowa; S. T. Slade, Des Moines; and C. G. Cockerill, Jefferson, Iowa. They were pioneers in the Independent telephone industry in Iowa.

Mr. Martin had a plant all ready to operate in Webster City when the Bell patents expired March 16, 1893. He had made his own sets, including transmitters and receivers. Shortly after the installation of the Webster City exchange, other Independent plants sprang into existence, buying their instruments from Mr. Martin, who made 2,000 to 3,000 for shipment. On March 18, 1896, Mr. Martin was instrumental in bringing about the meeting in Des Moines of various men interested in the work. There was organized at this meeting what was probably the first Independent state telephone association.

At that time J. S. Bellamy, of Knoxville, was engaged in the electric lighting business but was planning to enter the telephone field. This he did shortly after the organization of the association and at the next convention became a member.

S. T. Slade was engaged in operating at Oskaloosa but has now retired from the telephone business and lives in Des Moines.

C. G. Cockerill organized the Jefferson Telephone Co., of Jefferson, Iowa, but is now practically out of active participation in the company's affairs.

The proceedings of the first meeting in Des Moines were published in pamphlet form and what is believed to be the only copy now in existence is in the possession of S. T. Slade, from whom it was borrowed in order to reproduce the pages shown in the accompanying illustration.

PROCEEDINGS
OF THE
Iowa Telephone Association.
PURSUANT to a call the following persons, viz.: E. H. Martin, Webster City, Iowa; J. L. Stevens, Boone, Iowa; A. A. Moore, Marshalltown, Iowa; C. E. Greef, Eldora, Iowa; C. F. Bennett, Waterloo, Iowa; C. G. Cockerill, Jefferson, Iowa; Geo. N. Bandy, Perry, Iowa; F. A. Ferguson and H. Baum, Clearfield, Iowa; F. A. Dwinell and H. O. Woodruff, Sioux City, Iowa; A. T. Hess, Des Moines, Iowa; S. T. Slade and Ed. K. Himes, Oskaloosa, Iowa; W. A. Houts, Parker, S. D.; and J. E. Keelyn, Chicago, Ill., met at the Commercial Exchange, in the city of Des Moines, Iowa, March 18th, 1896, at 2 o'clock P. M., and were called to order by E. H. Martin, who stated that the object of the meeting was for the purpose of organizing a State Association of Independent Telephone Companies, for the advancement of interests and mutual protection, and W. H. Crooks was called to the chair, and E. K. Himes selected as Secretary.
motion E. H. Martin was made permanent
and E. K. Himes, Secretary.
Constitution was adopted
CONSTITUTION.
IOWA TELEPHONE ASSOCIATION.
ARTICLE I.
The name of this Association shall be the Iowa Telephone Association.
ARTICLE II.
The object of this Association shall be for the mutual protection and development of the interests of all local independent and co-operative telephone companies in Iowa.
ARTICLE III.
Any local telephone company, partnership or individual owning and operating, or about to own, any telephone exchange or public toll line, or any individual member of such company or m, whose interests are mutual and not antagonistic to this Associ
e a member of this Associat
provided.
ARTICLE IV.
ers of this Association shall consist
lent, Vice-President, Secretary and
d an Executive
members and
member ex-o
tee: and su
om time to
e Committee.
OFFICERS.
President.
E. H. MARTIN,
Webster City, Iowa.
Vice-President.
A. T. HESS,
Des Moines, Iowa.
Secretary.
ED K. HIMES,
Oskaloosa, Iowa.
Treasurer.
S. T. SLADE,
Oskaloosa, Iowa.
EXECUTIVE COMMITTEE.
E. H. MARTIN, Ex-officio,
Webster City, Iowa.
C. E. WELLS,
Boone, Iowa.
C. F. BENNETT,
Waterloo, Iowa.
F. A. DWINELL,
Sioux City, Iowa.
G. N. BANDY,
Perry, Iowa.
Committee on Material and Shipments.
E. H. MARTIN, E. K. HIMES, C. E. WELLS.
Committee on Future Work and Extensions.
C. G. COCKERILL,
Jefferson, Iowa.
A. A. MOORE,
Marshalltown, Iowa.
D. N. SMITH,
Polen, Iowa.

J. S. Bellamy, C. G. Cockerill, E. H. Martin and S. T. Slade, Pioneers of Iowa Telephone Association—Pages from First Proceedings.

Large Cable Across Mississippi at New Orleans.

The Cumberland Telephone & Telegraph Co. recently laid across the Mississippi River at New Orleans, La., a telephone cable six inches in diameter, carrying 104 pairs of wires, including a large number of toll circuits, and wires for local service to replace wires previously carried in small cables.

The Rejuvenation of the Craneville Telephone Exchange

A Serial Story Telling How a Rundown Telephone Plant Was Rebuilt, Enlarged and Changed Successively from a Grounded to a Local Battery Metallic System and Later to Common Battery —Problems Encountered by Every Practical Telephone Man

By Paul Hamilton

"Hello, Barrows, come in and sit down a minute," said Mr. Rankin, as the telephone man was passing the livery barn where Mr. Rankin happened to be. "There's something afoot that may interest you."

Mr. Barrows entered the shed-like office partitioned off in one corner of the barn. The place reeked with the customary barn odor.

"Ever hear of the Standby Telephone Co.? I guess I told you something about it, but maybe I didn't mention the name. It was that other farmer line I was telling you about. They were in with the Mutuals (the Runkel crowd) in trying to get into town. After that last scheme fell through, they seemed to lose heart and let the line they did have go to pieces. They're working in bunches of two's and three's now, but there used to be 20 of them.

"They seem to have kinda petered out. I can't find that they've had any trouble among themselves. It seems that about half of them have let their telephones get out of commission, leaving gaps in the line.

"Bill Munson lives out near the far end of the line; got a big place, and was one of the prime movers in the telephone business. Bill's in town now. That's his team over there in that double stall; worth a thousand dollars just as they stand. He's going 'round to see you. He came in to bring Doc Colegrove home. Doc's our veterinary. Bill had a stallion, Brown Prince, worth fifteen or eighteen hundred.

"The horse took sick last night. Bill tried to telephone to someone nearer town but couldn't get anybody, so he had to hitch up and come in after Doc. When they got back, Doc did what he could, but the horse was too far gone. Doc said if he'd have been there a half hour earlier, he could have lanced the animal's throat and saved him.

"Munson didn't carry insurance, except against fire and accident, so he stands to lose fifteen hundred. He says he's going to have a telephone into town. I told him your plan in a general way. He says he'll have five contracts signed for you before night. I just want to tell you that Munson is no bluffer. If he makes an agreement with you, he'll do his part and he'll see that you do yours."

"It was rather a heavy loss and it may have some influence, if he puts it up to his neighbors," said Mr. Barrows. "There are a good many similar cases which I could quote. I think that north line will develop perhaps before winter sets in."

"This man Munson will surprise you; that is his method of doing business," was Mr. Rankin's comment. "You'll be held up here in town for a while until the electric light people come to some conclusion on my proposition. I've concluded it's my chance to clean up. The International Power Co. is ready to take the thing off my hands and I guess I'll let them, as soon as I've heard some of these tight-wad investors squeal a little. I was well fixed once and ought to have quit then. When I get the gravy off of this pie, I'll appoint myself general referee for the Craneville community."

"Are you still in the running for sheriff?"

"Well, Barrows, I'm sorry I am, but it's against my principles to back out of a proposition of that kind. After this electric light affair is cleaned up, it may be more than an even bet that I won't be elected. But if they lick me, they'll know they've been in a fight, and there'll be an awful crimp in somebody's bank roll. Now, Barrows, if things get to coming too fast and you find you want both those farmer lines in before winter and need any help, don't be behind-hand about saying so."

"As you say, there probably isn't much in them, but they belong to your game the same as the 'bus line to the depot belongs to mine. That 'bus doesn't pay its upkeep, but if I let Bob Tanner run it, he would be hauling most of the traveling men around the country in mortgaged rigs in a month."

"All right, Mr Rankin, there may come a time when I will need assistance of some sort," replied Mr. Barrows, rising to continue on his way to the exchange.

When he reached the exchange, he found Mr. Munson waiting for him. After introducing himself, the farmer said:

"I've come in to see about getting a telephone out to my place. I live four miles and a half east. I hear you have made propositions to the farmers north of here to give them service. I needed a telephone so bad last night, that I've made up my mind to have one I can depend on. We've had a line out our way that has been a big help to us in the past, but it's out of commission now. I've come to the conclusion that it's a branch of business that we haven't had the training to look after. Now, just what is your proposition?"

Mr. Barrows gave him a copy of the contracts he proposed to put in force. The farmer read it carefully, studied it a moment, and said:

"It looks pretty steep to me for general purposes, but then there are times, and I guess they come as often as once a year, when a good many times the price could be saved in a few minutes. For instance, last night I lost a horse which stands me out enough to pay the rental for almost two hundred years."

"You will not find that all your neighbors will agree with you," Mr. Barrows remarked.

"Your intention, as I understand it, is to begin work as soon as five contracts are signed," went on Mr. Munson. "Now, here is my proposition: I'll sign five of these contracts, with the privilege of substituting other names on four of them; that is, I'll get four of them signed, and perhaps more. When I secure four, however, it will cancel my liability to four of these I'm signing now. What I'm after is a telephone and I want it as soon as I can get it. How soon do you think you can fix me up?"

"I can't even set an approximate date now. I'll drive over the road today and can probably give you the information by the time I get to your place."

"All right! I may have some of these contracts ready by the time you get out there," concluded Mr. Munson, as he left the office.

When the farmer had gone, the Doctor came from behind the board, where he had been closing lines for Frank and Germany.

"Well, Doctor, what's on your mind?" asked Mr. Barrows.

"If you have a few minutes, I would like to talk with you about the case of that fellow on the north side who wanted a free telephone for the privilege of allowing wires to hang

over his property. I have been thinking about it and have concluded that the telephone, if given away, would cost $40."

"Well, Doctor, that is a problem which has been discussed a great deal."

"This is the view I take," continued the Doctor. "We have this telephone installed and earning its portion, or $24 per year, and we agree to exchange the earning capacity of this telephone for an overhead right of way; in other words, we assume a lease at a cost of $24 to us from year to year. That is not all: To meet the terms of the lease, we must maintain, operate and set aside a reserve fund, which you estimate roughly at $16 yearly. This must be paid out in cash. In that way this piece of right of way represents $40."

"That is from the viewpoint of considering the right of way in question as something tangible," said Mr. Barrows. "Right of way is as necessary as poles; in fact, it is a prior requisite. If a man is starting out to build a telephone exchange, poles and wire, though quite necessary, are not the first things he will look for. His first interest is to find a place to set poles and run his wire.

"But, in your calculations you have overlooked the fact that when we set a rate of $24 per year, it includes the $16 for maintenance, operation and depreciation, so that the real earning capacity of the instrument is $8, not $24, as you have assumed. The right of way therefore would actually cost us $16, plus our profit of $8, or $24."

"In keeping your books," persisted the Doctor, "you credit the instrument with $24 as the revenue derived from it, so why not charge the $24 as actually paid out for the right of way? Then the $16 would also have to be entered as paid out for maintenance, operation and depreciation. The books would show that the right of way costs $40, wouldn't they?"

"Charging on the books the $24 and then $16 is the only way you can figure the $40 cost. But, as I said before, the fallacy is in your considering the $24 as net revenue, when in reality it is only $8. No, I cannot see that your argument holds.

"When Frank comes in at noon, tell him I shall be away for the balance of the day and may not be back for our evening conference, though I shall try to get here."

"All right, Mr. Barrows. Perhaps we can amuse ourselves for a little while."

"Maybe you'll find time to get that pile of junk out of the storeroom and take it out back and burn the insulation off of it. You won't find very much bulk after the insulation is off. I guess you can put it all into a nail keg. It's worth about ten cents a pound, so it pays to save it. That pile of iron junk isn't worth anything and will have to be dumped into the river some day," and Mr. Barrows left the office.

From Mr. Munson, Mr. Rankin had learned that the telephone man intended driving over the route of the proposed farmers' line during the day and decided to accompany him. Therefore, he directed that a team be held in readiness at the barn for their use. As Mr. Barrows was passing on his way out, Mr. Rankin told him of his intention, and calling the barn, directed that the team be brought to the office.

During the journey, the conversation was mostly a monologue, as Mr. Barrows was busy jotting down information in what might be termed a field book. At each corner he stopped and made a rough sketch, from which he would be able later on to make quite accurate diagrams. He found that it would be necessary to cross the road with the line at several places. Sketches and notes were made of these locations also.

When at last they reached Bill Munson's farm, they found him awaiting them with five signed contracts, in addition to his own.

"I guess that will be enough to go ahead on," he said to Mr. Barrows. "Now, about how soon can you get my telephone working?"

"I think the way the land lays that two weeks will be ample time and possibly ten days," Mr. Barrows answered, accepting the contracts. "We will begin work tomorrow."

On the return journey an inspection was made of each place, where the farmers had contracted for telephones, so that Mr. Barrows returned to the exchange prepared to make out an estimate to cover the construction cost.

"Rather quick action, isn't it, Barrows?" Rankin inquired.

"Yes, we might call it precipitate; but the weather is going to break into small pieces one of these days. I can get any number of men right now on account of the brickyard being shut down. Getting the poles up is the main part of the job. Frank and Germany can make short work of the rest of it."

"I was just thinking how important a telephone ought to be to these farmers. There isn't one of these fellows, who have signed contracts, that hasn't a capital investment of five thousand dollars. If they would learn to value their time at so much an hour, they would find that a telephone at even twice the rate you have fixed would be a good investment, not to mention such experience as that which Munson had yesterday.

"There was a time, not many years ago, when a veterinary would have starved to death in this locality. If a handful of salt, or flaxseed, or a dose of oil didn't bring the animal around, it was called a bad job. The first veterinary that came to Craneville had a hard time of it. I was like the rest. I couldn't see why he should know any more about horses than I did. About the time he began to do a little business, he became discouraged and left. Farmers, as a general rule, are slow to accept new ideas; but when it is finally made clear to them, they are good patrons—the best in the world."

When Mr. Barrows reached the exchange, he cleared his desk and began work on estimating the cost of the new addition to the plant. He proposed building a 20-foot line, using the poles which had been removed during the reconstruction at Craneville. Many had already been cut the 20 feet, the butts having never been removed from the ground.

There were several places along the highway where clearance of fruit and shade trees would require 25 and even 30-foot poles. Several cross-roads also made higher poles necessary. From his notes and sketches, Mr. Barrows worked out the following:

LINE MATERIAL.

Poles for line, 30 per mile		140
20-ft. poles	100	
25-ft. poles	23	
30-ft. poles	14	
35-ft. poles	3	
		140
Poles for loops		17
20-ft. poles	10	
25-ft. poles	5	
30-ft. poles	2	
		17
Total number of poles		157

775 lbs. No. 12 galvanized wire.
50 lbs. No. 4 galvanized wire.
160 brackets.
160 pony insulators.
15 ⅜-inch anchor rods.
30 two-bolt guy clamps.

Incidentals: Nails, creosote paint, washers, bolts, etc.

EQUIPMENT AND MATERIAL ESTIMATE.

6 instruments complete.
6 ⅜-inch ground rods.
6 No. 0 protectors.
300 ft. two-conductor No. 19 inside wire.
200 ft. single conductor No. 18 rubber covered ground wire.
Incidentals: Staples, screws, tape, etc.

He also made a sketch (Fig. 83) for use in locating the line.

During the evening, he discussed the labor involved in the enterprise. It was Frank's opinion that one man should

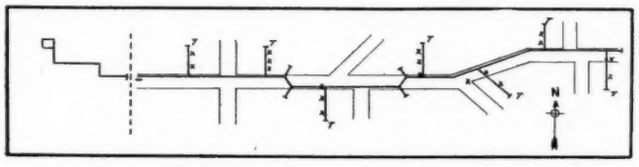


Fig. 83. Tentative Route of Line and House Drops.

dig at least seven holes in a day. Germany was more conservative and claimed ten would be an average day's work. Mr. Barrows having started the argument between them by the mere mention of the digging as an item of expense, listened to them without comment. The two men became more and more excited, Germany even going to the extent of putting in a German word now and then, which added to Frank's annoyance. Finally the Doctor put in a few words.

"Say, you fellows! How deep are you going to dig the holes, anyway?"

"Well, I don't know exactly," answered Germany, "two and a half or three feet, maybe."

"How about it, Frank?" the Doctor persisted.

"Well, I hadn't thought about it—three or four feet, I guess," Frank replied.

"It occurred to me that if you'd get together on the kind of holes you are going to dig, you'd get closer together about the number you can dig in a given time. Back in our town, two fellows got to arguing in the store one night about how much wood they could saw in a day. They got into a fight over it, finally. After they had broken a show case, the storekeeper put a stop to the fracas and took a hand in their argument.

"Of course, they were both talking about four-foot cord wood, but one figured on sawing it only once, while the other was referring to making stove length, which requires cutting each stick twice. For the same kind of work, they were quite agreed. It looks about that way with you fellows."

"I guess the Doctor is on the right track," said Mr. Barrows. "Let's begin that way. There will be about 110 20-foot poles—three-foot holes will do for them. About a third of them will be in clay with some stone. Do you think you can pick up a half dozen men who can average eight holes a day?"

Both men agreed that they could do that and also that the remaining 47 holes could be put in on th esame average.

After further discussion of the hauling and distribution of poles, the session was adjourned.

(To be continued.)

Valuation Questions in Nebraska.

Following a long-drawn battle between the telephone subscribers of York County, Neb., and the Lincoln Telephone & Telegraph Company's York County exchange, before the Nebraska Railroad Commission, a compromise has been effected whereby the rates will be increased May 1 to give the company $6,600 additional income a year.

The company did not get all it wanted. Subscribers did not get all they wanted. Involved in the case is a question that vitally will affect the valuation of properties and the making of rates in Nebraska from now on. The controversy revolves about the question of whether the commission's physical valuation engineers', or the commission's accountants' figures shall be accepted as the true basis for plant valuation and rate control. The commission members have indicated that hereafter they will obtain private valuations from both physical valuation experts and accountants, thus playing both ends against the middle to find what appeals to the commissioners themselves as the equitable basis for official action.

Present rates for York County service are: Individual business, $2,50; two-party business, $2; individual residence, $1.50; two-party residence, $1.25; four-party residence, $1, and farm line, $1.

The rate increases proposed by the company were: Individual business, $3.50, compromised at $3; two-party business, $3, compromised at $2.50; individual residence, $2, compromised at $1.65; two-party residence, $1.50, compromised at $1.40; four-party residence, fixed at $1.25, and farm lines, $1.50, which rate was adopted. Each subscriber is to have the use of two chosen exchanges, but for the use of a third exchange, 25 cents a month additional will be charged. Full county service for a business telephone will add $1 a month to the rate, while the same service for a residence telephone will cost 50 cents more a month.

When the Lincoln company applied to the commission for an increase in York rates, subscribers there were dissatisfied with the state engineers' physical valuation figures. The commission paid Engineer John Stone, working for Engineer Bemis of Chicago, and chosen by the subscribers themselves, to make another valuation of the equipment. Stone's figures, after they were sifted by the commission, practically agreed with the figures of the commission's engineers.

Stone placed a reproduction value of $155,981 and a present value of $99,231 upon the York plant; as against the engineers' reproduction value of $164,148 and present value of $119,559.

However, Stone upon the witness stand was charged by the Lincoln company with failing to include certain properties of the company in his valuation. Stone made some concessions in this respect, upon the witness stand.

At this point the commission based part of its judgment upon another set of figures presented by Accountant U. G. Powell. But the accounting system, such as is employed by Mr. Powell, was not used as a basis for the York rate compromise to any great extent. The fact that Powell conferred with the commissioners is indicative (it is believed) of the commission's plan to use both accounting and physical valuation figures in rate cases hereafter.

This combination of accounting research with engineering valuation is apt to come to a head before the commission in the Stanton Independent company's case, now before the commission.

At Stanton 10 years ago two business men bought a 66-telephone plant, established, for $2,500. They added $800 for improvements. Subsequent improvements and additions to make the plant a $15,000 one, serving 500 customers, came from the revenue of the plant. In addition to this the two owners, according to Mr. Powell, have received $8,000 in dividends and one of them drew a salary from the funds of the company for a time.

The state's engineers placed a reproduction value of $30,362, and a present value of $25,352, upon the plant. When an effort was made to reincorporate the company and capitalize it upon the engineers' figures, however, the commission refused to sanction the action.

This situation in Nebraska promises interesting developments in the matter of telephone company valuations and rate-control in that state.

Recent Improvements in Long Distance Telephony

Inventions Which Have Enabled Increase in the Practical Distance of Telephone Communication Over Land and Under Water—Abstract of Lecture Before the Royal Institution, London, by Prof. J. A. Fleming, F. R. S., and Published in the Electrician

Every telephone cable has four primary qualities, two conservative, viz.: its inductance and capacity, in consequence of which it can store up kinetic and potential energy in the form of a magnetic or electrostatic field. Also it has two dissipative qualities, viz.: its conductor resistance and dielectric leakance, which convert a part of the energy given to it into heat. Hence an electromotive impulse given to the cable at one end is propagated along it at a wave. The current in the cable at each point is oscillatory, but the current is not, so to speak, at high tide simultaneously at all points in the cable, but successively, the maximum value traveling along the cable with a certain speed.

In the case of a wire or string of finite length the wave is reflected at the far end, and if the time taken by the wave to travel to and fro is equal to some exact multiple of the periodic time of the impulses, stationary waves are produced on the cord or wire. These effects, together with a demonstration of the laws of string vibration, were proved by the aid of Prof. Fleming's vibrating string apparatus in which a light cotton cord has one end fixed to a slide rest and the other end twirled uniformly with an irrotational motion by an electric motor.

The production of stationary electric waves on wires was also beautifully shown by the use of a long wire coiled into a helix on an ebonite rod. One end of this helix was connected to the earth and the other a high frequency oscillator. On adjusting the frequency of the oscillator, stationary electric waves of wave length equal to some exact multiple or fraction of the length of the helix were produced, and shown to exist by the brilliant glow of a Neon vacuum tube held near the ventral segments, and its non-glow when held near the nodes.

Prof. Fleming explained that in the case of a telephone wire the velocity with which the waves travel along it is greater the shorter the wave length, and also that in virtue of the resistance and dielectric leakance these waves attenuate in amplitude at a rate which is greater for short waves than for long ones. In the case of the helix operated on by high frequency currents, the wave velocity is the same for waves of all wave lengths, and is inversely as the square root of the product of the capacity and inductance per unit of length. Hence, when a complex e.m.f., the result of speaking to a telephone transmitter is applied to the end of a cable, the various simple harmonic waves into which they may be resolved travel along the cable with unequal speed and attenuation. The shorter waves travel fastest, but are worn out soonest. Hence the wave form is distorted by the disappearance of the higher harmonics, and the resulting sound is enfeebled by the attenuation.

These statements were proved by a new and interesting experiment. A complex e.m.f. comprising a fundamental wave having a frequency of about 100, and including higher harmonics of greater frequency, was applied to one end of an artificial cable built on Dr. Muirhead's plan, representing a submarine cable 50 miles in length. By means of a Duddell oscillograph the wave form of this electric oscillation was projected on the screen. A second wire on the oscillograph was then employed to examine the current in the cable at various distances, 10, 20, 30 etc., miles from the sending end, and to project on the screen a second curve representing the wave form at various distances along the cable. It was seen that as the distance increases, the wave form is reduced in height, and smoothed out so as to show that the higher harmonics are gradually extinguished. In the case of a telephone cable, this would mean that the received sound is not only fainter but altered in quality, so that the syllable or word is no longer recognizable.

Photographs were then shown, taken by Mr. Cohen at the General Post Office Research Laboratory, showing the distortion of various articulate sounds as transmitted through certain cables. A remedy for this distortion was first suggested by Oliver Heaviside, who proved mathematically more than 25 years ago that if the four constants of the cable were so related that the quotient of the inductance by the resistance was equal to the quotient of the capacity by the leakance, then waves of all wave lengths would travel at the same speed and attenuate at the same rate.

In all ordinary cables the first named quotient is much smaller than the second. Hence, to remove distortion, either inductance or leakance may be increased. Heaviside suggested increasing the former, and Prof. Silvanus Thompson in 1891 suggested increasing the latter by providing the cable with inductive leaks. Practical telephone engineers preferred however to decrease the resistance of the cable by increasing the copper section as far as possible. But there is a limit to this from the point of view of cost. Also the invention of paper-insulated cables for telephony assisted matters by reducing the capacity of the cable. Nevertheless a very important advance was made by Prof. Pupin, of Columbia College, New York, in 1899 and 1900, when he proved that Heaviside's suggestion could be put into practical form by loading the cable with coils of wire wound on iron wire cores inserted at equal intervals, but so close that at least eight or nine coils are included in the distance of one wave length of the average wave frequency which is always taken at 800. If the coils are placed farther apart relatively to the wave length, they do more harm than good.

Prof. Fleming illustrated this by a very pretty experiment of his own, consisting of a string loaded at intervals with beads, one end of the string being fixed, and the other twirled round by a motor, so as to produce on it stationary waves. When the half wave length was adjusted to be nearly equal to the distance between the beads, the cord refused to transmit the oscillations. It was also illustrated by the production of stationary electric waves on a series of helixes of wire having loading coils, or coils of high inductance introduced at intervals. An experiment was made with an artificial cable representing 40 miles of standard cable, into sections of which loading coils could be introduced or cut out as required. It was shown that when the cable was loaded, the current flowing out of it at the receiving end was greatly increased when constant e.m.f. was applied at the sending end.

It is found, then, that loading telephone wires by suitable coils of high inductance, placed at proper intervals of a mile up to 10 or 12 miles, according to the cable, greatly reduces the attenuation of the waves, although it is difficult to add sufficient inductance to cure distortion completely.

A mechanical illustration of this effect is: Suppose two similar ships to be launched together, side by side, down ways of equal inclination, and allowed to glide out into the sea as far as they would go until brought to rest by friction of the water. If, then, one of the ships were loaded

with ballast, so as to make it much heavier than the other, then, although entering the water at the same speed, the heavily loaded ship would glide out further than the other, because it would possess a greater store of kinetic energy. So it is with the electric waves on wires. By adding inductance to the circuit, the wave energy is increased, and the waves attenuate less for a given distance of travel.

This proposal of Pupin has proved to be a very practical solution of the problem of reducing the attenuation of telephone waves. Both aerial lines, underground cables and submarine cables can be "loaded" or "Pupinized" by inserting appropriately made inductance coils at equal distances, and the result is to reduce the attenuation to half or less than a half of that of the unloaded cable, and therefore to reduce the enfeeblement of the sound.

In the case of aerial lines there is no difficulty in inserting these loading coils in the run of the cable. The coils are contained in iron boxes attached to the telegraph posts at intervals of 6 to 12 miles. The coils themselves consist of an iron wire core wound over with wire and have generally an inductance of about 0.2 henry and a resistance of 6 to 8 ohms. In the case of underground cables the loading coils are placed in pits at intervals of two or three miles. Such underground cables consist now of paper-insulated double metallic circuits, a large number of such circuits being included in one watertight lead sheath. The problem of loading a submarine cable was more difficult to solve because the insertion of heavy iron-cased coils was out of the question. The cable had to be loaded in such manner as not to thicken it up inordinately at any point, and to permit of its being laid in the usual manner and lifted again if necessary for repairs. This particular problem was solved by Siemens Bros, by the invention of a particular form of cylindrical loading coil which could be inserted in the run of a cable of the usual double circuit type at distances of one nautical mile or so.

When once it had been shown that such loading was effectual, telephone engineers in all countries began to adopt it. In the United States the American Telephone & Telegraph Co. has equipped with loading coils lines up to 2,000 miles in length. The longest aerial loaded line is that from New York to Denver. It is composed of No. 8 hard drawn copper wires, the circuits being transposed to avoid cross talk and loaded every eight miles with coils having an inductance of 0.265 henry (Table No. I). The attenuation constant of the line is thus reduced to less than half

Line.*	New York and Denver.	Berlin and Rome.	Berlin and Frankfurt.	London (St. Albans) Leeds trunks No. 6.	No. 7.
Length	2,000 mi.	2,082 km.	584 km.	189 mi.	189 mi.
Coil spacing	8 mi.	10 km.	5 km.	8 mi.	12 mi.
Coil resistance, ohms	6.5	5	8.7	6.6	4.0
Total resistance, ohms	4.95	2.9	11.18	7.58	7.08
Capacity in mfs	0.0091	0.0056	0.0055	0.0098	0.0098
Inductance in henrys	0.0365	0.022	0.0461	0.037	0.0173
Attenuation constant	0.0013	0.011	0.0019	0.00283	0.00373
Total attenuation	2.6	2.2	1.12	0.55	0.72
Conductor	Copper	Phosphor bronze	Bronze	Copper	
Weight or size	435 lb. to mile	4.5 mm. diam.	2.5 mm. diam.	300 lb. to mile	

*All values are per mile or per kilometre at 800 frequency.

Table No. 1. Data on Loaded Aerial Land Lines.

of that of the unloaded line, and good speech is possible from New York to Denver.

Another long loaded aerial line just completed is that from Berlin to Rome. This line, with the exception of a short piece of cable through the Simplon Tunnel, is an overhead line of phosphor bronze wire, 4.5 mm. in diameter. It is loaded every 10 kilometres with loading coils having an inductance of 0.2 henry. It runs from Rome to Milan, thence to Iselle, then through the Simplon Tunnel to Brieg, then to Bale and Frankfurt, and so to Berlin. Dr. Breisig and Dr. di Pirro, who have had charge of the scientific work in connection with it, find the actual attenuation is closely

Cable.*	Anglo-French Coil—Loaded (1910).	Anglo-Belgian Coil—Loaded (1911). Ccircuit.	Anglo-Belgian Phantom Circuit.	Anglo-Irish Coil—Loaded (1913).
Length in nauts	21	48	48	64
Coil spacing in nauts	1	1.	1	1
Coil resistance in ohms	6.6	11.5	4.6	6.8
Total resistance in ohms	20.9	25.7	11.7	21.0
Capacity in mfs	0.138	0.162	0.314	0.166
Inductance in henrys	0.1	0.1	0.05	0.1
Ratio S/C	120	12	12	15
Attenuation constant	0.017	0.018	0.0173	0.015
Total attenuation	0.36	0.86	0.83	0.96
Conductor weight per naut	160 lb.	160 lb.	320 lb.	160 lb.
Attenuation constant.	0.0013	0.0011	0.0019	2 km. 2,08

*All values are per nautical mile of loop at 800 frequency.

Table No. 2. Data on Loaded Submarine Cables.

in accordance with the predicted value, and good speech is possible over the whole distance.

In England, the longest loaded lines are two toll lines running from London to Leeds, 200 miles, which are loaded every 8 and 12 miles. The engineer-in-chief, Mr. Slingo, states that the General Post Office has now in operation 30,000 miles of aerial and underground loaded circuits using 12,448 loading coils. Also 45,645 miles more are in course of being loaded, so that before long the postoffice will have 75,000 miles of circuits loaded with 30,000 coils. In the United States up to 1912, there were 103,000 miles of loaded circuits in all.

In England one of the longest loaded underground lines is that from Hull to Newcastle via Leeds, 154 miles in length, which is loaded ever 2.5 miles. The postoffice has now under construction an underground loaded line from London to Liverpool with Birmingham, which will contain 50 circuits, and render communication independent of storms. In the United States a long underground line has been constructed from Boston to Washington, 475 miles, passing through New York, Philadelphia and Baltimore. In Europe, a loaded line, underground, from Berlin to Cologne is in contemplation.

At present the English postoffice department has three submarine loaded cables, one from England to France laid in 1910, one from England to Belgium laid in 1911, and one from England to Ireland laid in 1913 (Table No. II). An Anglo-Dutch cable of the same type is also being manufactured to be laid between a point in Suffolk and the nearest point on the coast of Holland, a distance of 125 miles.

The Anglo-French uniformly loaded cable has an effective resistance of 8.54 ohms at 1,000 frequency, a wire to wire capacity of 0.176 mf., an inductance of 0.0135 henry and an attenuation constant 0.0185. The total attenuation is 0.39, the value of S/C is 109 and the conductor weighs 300 lbs. to the nautical mile.

These cables were all constructed by Siemens Bros. with the cylindrical coils previously mentioned. The Anglo-French and Anglo-Belgian cables were laid under the direction of Major W. A. J. O'Meara, C. M. G., when engineer-in-chief of the General Post Office, and the Anglo-Irish cable, under W. Slingo, now holding the same position. The French government also laid from France to England a uniformly loaded cable made by the Telegraph Construction & Maintenance Co. which has a copper core of twice the weight of the Anglo-French cable, and is loaded by being uniformly wound over with one layer of soft iron wire. Each of these cables contains two pairs of wires

which can be used as two independent circuits, and also, by using each pair conjointly as a lead and return, can be used to make a third or phantom circuit.. These cross-channel loaded cables have enabled telephonic speech to be transmitted from London to Geneva, London to Berlin, and to cities in the south of France.

Broadly speaking, it can be said that by loading cables and lines it has been possible to double or to more than double the distance of effective telephonic intercourse and to speak for 2,000 miles overland, 500 underground, and up to 100 miles or more under sea. It is possible that submarine communication in this manner may be increased to 200 or even 250 miles, and overland to 3,000 miles.

Turning to the question of the abolition of the line by so-called wireless telephony, Prof. Fleming gave a brief description of the apparatus used. The arrangements are closely similar to those employed in wireless telegraphy. At the transmitting station there must be an antenna in which continuous oscillations are set up by a Marconi disc generator, a Goldschmidt alternator or some form of arc generator such as that of Poulsen or Moretti.

In the base of the antenna, or coupled to it, must be placed a microphone by means of which the speaker's voice makes changes in resistance of the antenna circuit. The continuous electric waves radiated must have a wave length of not much greater than five or at most 10 miles. If a spark system of wave generation is employed, the spark frequency must not be less than about 20,000 per second.

When the microphone is spoken to, the result is to vary the amplitude of the waves emitted without altering their wave length. It produces waves on waves. At the receiving end the arrangements are similar to those used in wireless telegraphy with a telephonic and crystal or valve receiver. In this case, however, the receiver hears the words spoken to the distant microphone and not merely dot and dash Morse signals.

Using a very ingenious liquid microphone, Prof. Vanna, of Rome, has transmitted speech for 1,000 kilometres. In the United States, Fessenden has similarly telephoned a few hundred miles, and Poulsen in Denmark, Colin and Jeance in France, Goldschmidt in Germany, and Ditcham in England, have covered greater or lesser distances. Marconi also has recently devised appliances for wireless telephony with which he has conducted demonstrations lately for the Italian Navy. All are agreed that the quality of the transmitted speech is good. Since electric waves through the ether all travel with the same velocity, no matter what the wave length, and attenuate at the same rate, there is no distortion of the wave form. The only difficulty that hinders even greater achievement is that of obtaining a microphone which will carry larger high frequency currents.

These are a few of the achievements which have been lately made in covering greater distances in telephonic communication. We are yet a long way from telephony across the Atlantic, whether with cables or by wireless, but progress will continue to be made, and it is possible that one day speech transmission from England to San Francisco with one repetition at New York may be accomplished.

In the 38 years which have elapsed since Bell and Edison and Hughes gave us the means of commercial telephony, much has been done, but there is still a wide field open for invention in improving a means of communication now so essential to our modern life.

Telephone Agreement and Transfer at Ashland, Wis.

The Railroad Commission of Wisconsin has authorized the transfer of property by the Wisconsin Telephone Co. and the Ashland Home Telephone Co., by which the Wisconsin Telephone Co. is to retire from the local exchange business at Ashland, Wis., and is to leave the field within that city to the Independent telephone company. The latter company, on the other hand, is to turn over to the Wisconsin Telephone Co. all of its rural and toll lines, and is to confine itself to operations within the city of Ashland.

The details of the transfer are as follows: The Wisconsin Telephone Co. is to turn over to the Ashland Home Telephone Co. its exchange in the city of Ashland consisting of central office equipment and subscribers' lines. The Ashland Home Telephone Co. is to transfer to the Wisconsin Telephone Co. its toll lines in Ashland County, its exchange in the village of Mellen, Wis., the toll lines of the Northern Wisconsin Toll Line Co., an affiliated corporation, and the telephone exchange at Washburn, Wis., now owned by the Bayfield County Telephone Co. The total valuation of these properties to be turned over by the Ashland company fell somewhat short of the valuation placed upon the Wisconsin Telephone Company's Ashland exchange, and therefore the Ashland Home Telephone Co. was authorized, in addition, to issue $17,500 of its bonds as a part of the consideration of the transfer.

The Wisconsin Telephone Co. will, as a result of the transaction, obtain a substantial interest in the affairs of the Ashland Home Telephone Co. by the acquisition of $17,500 of the stock of the latter company. This stock is to be acquired by the Ashland Home Telephone Co. without cost from some of its stockholders and is to be turned over to the Wisconsin Telephone Co. as a part of the consideration for the exchange of the property. The value of this stock, however, does not enter into the valuation as determined by the railroad commission for the purposes of the transfer, since the stock is to be merely donated by the individual holders to the Wisconsin Telephone Co. through the Ashland company as intermediary.

The valuation placed by the Wisconsin commission on the Ashland exchange of the Wisconsin Telephone Co. for the purposes of the transfer, was $46,000.

State and Municipal Jurisdiction in Oregon.

The Oregon Railroad Commission recently referred to Will H. Daly, department of public utilities, of Portland, the complaint of H. L. Christensen and others, of that city, against the Home Telephone & Telegraph Co. The complainants alleged that the company had violated the provisions of its municipal franchise by operating telephones manually instead of automatically, using iron wires in certain districts and having overhead instead of underground wires in others.

Commissioner Aitchison wrote Mr. Daly that the jurisdiction for the enforcement of the franchise evidently was with the city council and sent him a transcript of the evidence that had been taken by the commission. He informed Mr. Daly that there were a large number of distribution points in the underground district that had been complained of as a hazard to life and property. However, recommendations of the commission in several instances were accepted by the company.

Telephone Rates in Detroit Hotels.

At a general telephone hearing before the Michigan Railroad Commission in Detroit in January, the hotel people of that city, through their representative, Mr. Burns, took up with the commission the matter of the practice of telephone companies in requiring a deposit of 5 cents from a public pay station located in the hotel and the matter of the charge of 10 cents for calls emanating from a room. The commission found, upon investigation, that the practice is that the telephone company exacts a charge of 5 cents whether the call be from a public pay station or from a room, and if from a room, the hotel company gets the additional 5 cents. No further application has since been made by the hotel interests for a decision.

The Present Administration and Anti-Trust Legislation

The Planks Relative to Trusts and the Sherman Law as Set Forth in Platform Adopted at Baltimore in 1912—Bills Being Considered as Result of President Wilson's Message to Congress in January—The Sherman Law

At the Democratic National Convention in Baltimore in 1912, the platform which was adopted included, among other planks, the following:

A private monopoly is indefensible and intolerable. We therefore favor the vigorous enforcement of the criminal as well as the civil law against trust and trust officials, and demand the enactment of such additional legislation as may be necessary to make it impossible for a private monopoly to exist in the United States.

We favor the declaration by law of the conditions upon which corporations shall be permitted to engage in interstate trade, including, among others, the prevention of holding companies, of interlocking directors, of stock watering, of discrimination in price, and the control by any one corporation of so large a proportion of any industry as to make it a menace to competitive conditions.

We regret that the Sherman anti-trust law has received a judicial construction depriving it of much of its efficacy, and we favor the enactment of legislation which will restore to the statute the strength of which it has been deprived by such interpretation. We insist that federal remedies for the regulation of interstate commerce and for the prevention of private monopoly shall be added to and not substituted for state remedies.

On January 20 of this year, President Wilson delivered to Congress a message relating to the trust questions. In his message he advocated the passage of a series of bills, known as "the five brothers." They are: 1. The interstate trade commission bill; 2. The interlocking directorates bill; 3. The Sherman law definition bill; 4. The trade relations bill; and 5. The railroad securities issue bill. Since then tentative committee drafts have been made of various bills, but only the bill creating an interstate trade commission has been introduced in Congress.

In view of the purpose of these bills TELEPHONY believes its readers will be interested in knowing exactly what the Sherman law covers and also the additions which have been made to it.

THE SHERMAN ANTI-TRUST LAW.

THE SHERMAN LAW; an act to protect trade and commerce against unlawful restraints and monopolies.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Section 1. Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several states, or with foreign nations, is hereby declared to be illegal. Every person who shall make any such contract or engage in any such combination or conspiracy, shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding $5,000, or by imprisonment not exceeding one year, or by both said punishments, in the discretion of the court.

Section 2. Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several states, or with foreign nations, shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding $5,000, or by imprisonment not exceeding one year, or by both said punishments, in the discretion of the court.

Section 3. Every contract, combination in form of trust or otherwise, or conspiracy, in restraint of trade or commerce in any territory of the United States or of the District of Columbia, or in restraint of trade or commerce between any such territory and another, or between any such territory or territories and any state or states or the District of Columbia, or with foreign nations, or between the District of Columbia and any state or states of foreign nations, is hereby declared illegal. Every person who shall make any such contract or engage in any such combination or any conspiracy, shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding $5,000, or by imprisonment not exceeding one year, or by both said punishments, in the discretion of the court.

Section 4. The several circuit courts of the Uniter States are hereby invested with jurisdiction to prevent and restrain violations of this act; and it shall be the duty of the several district attorneys of the United States, in their respective districts, under the direction of the Attorney General, to institute proceedings in equity to prevent and restrain such violations. Such proceedings may be by way of petition setting forth the case and praying that such violation shall be enjoined or otherwise prohibited. When the parties complained of shall have been duly notified of such petition the court shall proceed, as soon as may be, to the hearing and determination of the case; and pending such petition and before final decree, the court may at any time make such temporary restraining order or prohibition as shall be deemed just in the premises.

Section 5. Whenever it shall appear to the court before which any proceeding under section four of this act may be pending, that the ends of justice require that other parties should be brought before the court, the court may cause them to be summoned, whether they reside in the district in which the court is held or not; and subpoenas to that end may be served in any district by the marshal therefor.

Section 6. Any property owned under any contract or by any combination, or pusuant to any conspiracy (and being the subject thereof) mentioned in section one of this act, and being in the course of transportation from one state to another, or to a foreign country, shall be forfeited to the United States, and may be seized and condemned by like proceedings as those provided by law for the forfeiture, seizure, and condemnation of property imported into the United States contrary to law.

Section 7. Any person who shall be injured in his business or property by any other person or corporation by reason of anything forbidden or declared to be unlawful by this act, may sue therefor in any circuit court of the United States in the district in which the defendant resides or is found, without respect to the amount in controversy, and shall recover threefold the damages by him sustained, and the costs of suit, including a reasonable attorney's fee.

Section 8. That the word "person," or "persons," wherever used in this act, shall be deemed to include corporations and associations existing under or authorized by the laws of either the United States, or the laws of any of the territories, the laws of any state, or the laws of any foreign country.

ADDITIONS TO SHERMAN LAW.

A bill to supplement an act entitled "An Act to protect trade and commerce against unlawful restraints and monopolies," approved July 2, 1890.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that the act, approved July 2, 1890, entitled "An Act to protect trade and commerce against unlawful restraints and monopolies," is hereby supplemented and amended by adding thereto the following:

Section 9. That it shall be deemed an attempt to monopolize trade or commerce among the several states, or with foreign nations or a part thereof, for any person in interstate or foreign commerce to discriminate in price between different purchasers of commodities in the same or different sections or communities, with the purpose or intent to thereby injure or destroy a competitor, either of such purchaser or of the seller: Provided, that nothing herein contained shall prevent discrimination in price between purchasers of commodities on account of differences in the grades, quality or quantity of the commodity sold, or that makes only due allowance for difference in the cost of transportation: And provided further, that nothing herein contained shall prevent persons engaged in selling goods, wares or merchandise in interstate or foreign commerce from selecting their own customers, but this provision shall not authorize the owner or operator of any mine engaged in selling its product in interstate or foreign commerce to refuse arbitrarily to sell the same to a responsible person, firm or corporation who applies to purchase.

Section 10. That it shall be deemed an attempt to monopolize trade or commerce among the several states, or with foreign nations or a part thereof, for any person in interstate or foreign commerce to make a sale of goods, wares or merchandise or fix a price charged therefor or discount from or rebate upon such price, on the condition or understanding that the purchaser thereof shall not deal in the goods, wares, or merchandise of a competitor or competitors of the seller.

Section 11. That nothing contained in Section nine or Section 10 hereof shall be taken or held to limit or in any way curtail the meaning and effect of the provisions of Section two of this act.

Section 12. That whenever in any suit or proceeding, civil or criminal, brought by or on behalf of the government under the provisions of this act, a final judgment or decree shall have been rendered to the effect that a defendant, in violation of the provisions of this act, has entered into a contract, combination in form of trust or otherwise, or conspiracy in restraint of trade or commerce among the several states or with foreign nations, or has monopolized or attempted to monopolize, or combined with any person or persons to monopolize, any part of the trade or commerce among the several states or with foreign nations, the existence of such illegal contract, combination, or conspiracy in restraint of trade, or of such attempt or conspiracy to monopolize, shall, to the full extent to which such judgment or decree would constitute in any other proceeding an estoppel as between the government and such person, constitute as against such defendant conclusive evidence of the same facts and be conclusive as to the same issues of law in favor of any other party in any other proceeding brought under or involving the provisions of this act. In all cases where any person who shall have been injured in his business or property by any person or corporation by reason of anything forbidden or declared to be unlawful under the provisions of the act entitled "An act to protect trade and commerce against unlawful restraints and monopolies," approved July 2, 1890, and who at the time or previous to the institution of any such suit by the United States as aforesaid has a cause of action under Section seven of said act or under Section 13 of this act against any defendant in a suit wherein a decree or judgment has been obtained as aforesaid, the statutes of limitations applicable to such cases shall be suspended during the pendency of such suit and shall not again become operative until after the date of the final decree or judgment in such case.

Section 13. That any person, firm, corporation, or association shall be entitled to sue for and have injunctive relief, in any court of the United States having jurisdiction over the parties, against threatened loss or damage by a violation of this act when and under the same conditions and principles as injunctive relief against threatened conduct that will cause loss or damage is granted by courts of equity, under the rules governing such proceedings, and upon the execution of proper bond against damages for an injunction improvidently granted and a showing that the danger of irreparable loss or damage is immediate a preliminary injunction may issue.

Suits Brought Under the Sherman Anti-Trust Law.

The government has just printed an interesting little pamphlet with the title "The Federal Anti-trust Law with Amendments," and containing the list of 162 cases instituted by the United States from the "Jellico Mountain case" in 1890, down to the beginning of the present year.

Of seven cases brought during the Harrison administration (1890-1893), four were won and three lost, the seventh prosecution being the great "Knight case," the decision of which was for years thought to have practically made the Sherman act a dead letter. Later decisions have flatly reversed this one.

Under Cleveland there were eight actions, with three subsidiary ones. The Cleveland record is seven victories for the government against four defeats. Five of the victories were prosecutions of labor leaders in connection with the Debs incident. One anti-trust suit against a "trust," the leading Addyston Pipe case, was successfully prosecuted. The great anti-railroad prosecution, by which the Joint Traffic Association was broken up, occurred in Cleveland's time.

Only three suits under the law were brought under President McKinley (1897-1901)). Two coal cases were won. A live stock suit was lost.

Under Roosevelt 44 suits were instituted. It is possible to call 22 of them victories and 17 clear defeats for the government. Fourteen victories were won against industrial combinations and four against railroads. Ten industrial suits were lost, also four suits against lumber interests. Some of the cases dragged along into the Taft administration.

President Taft's administration instituted 89 suits, with 30 clear victories and 21 defeats. At the first of the year 29 cases were still pending. There were 18 victories against industrial combinations and 14 defeats.

Eleven suits had been brought during the calendar year 1913 by the present administration. An agreed decree against an industrial combination had been obtained.

More than two-thirds of all the disposed of cases in the history of the law have been prosecutions of industrial concerns. Between the years 1901 and 1913 56 cases were decided, with 32 won and 24 lost to the government.

Twelve prosecutions of labor union leaders and followers have been had under the law. Of these 10 were successful. The "Night Rider" prosecution, which was also won, is the only suit brought against a combination of farmers.

Two prosecutions under the Sherman act are on record against men who have attempted to "corner" commodity markets. Both were successful.

The government has recovered $641,025 in fines under the act, including $135,000 involved in the Cash Register conviction, which has been appealed to the United States Supreme Court.

The only men who ever went to prison under the Sherman act were labor leaders.

The Roosevelt and Taft administrations were notable for the first successful attacks upon organizations of tradesmen that enforced upon members and others the upholding of prices and restraining regulations. Six such associations have been convicted and enjoined.

There were seven suits terminated during President Taft's administration by consent, upon the agreement of the defendants to cease the restraining activities that the government complained of.

A Study of the Use and Preservation of Wooden Poles

A Critical Examination of Wooden Poles for Telegraph and Telephone Lines—Extent of Use Throughout World—Question of Determining Value of Different Modes of Preservation and Species of Wood—Second Installment

By Dr. Friedrich K. Moll

20. Switzerland. Most poles, about 90 per cent., are preserved with creosote oil. In remote mountain valleys, to which transportation of preserved poles would cost too much, untreated poles, mostly larch and chestnut, bought in the neighborhood, are mainly employed. The government permits preservation of pine, fir, red fir and larch. Fir, if grown in the mountains, is not allowed to exceed half; if grown elsewhere, a fifth, of the contracts. The duration of Boucherie poles is estimated to be 12 to 15 years. As to untreated poles, Telegraph Inspector Brodbeck, of Chur, reported in 1898 that untreated pine and fir lasted in the plain about three to five years, larch and mountain pine in low parts of the country 12

Country	Lines: Total kilometer	Wires: Total kilometer	Population	Area of Country sq.kilometer	Lines per sq. km. meter	Wires per sq. km. meter	Wires per Line	No. of Poles pieces	Wires per Pole meter	Poles per Inhabitant	Annual Loss of Poles pieces	Annual Requirements pieces
EUROPE												
Germany	TS 203 149; R 50 078	253 227	1 421 837; 225 400	1 647 237	65 000 000	540 777	550	3 510	6,3	4 400 000; 1 100 000	375	10,1	130 000; 31 000	350 000; 33 000
Bavaria	T 21 653; S 9 560	31 240	T & S 116 826; R 38 627	155 453						813 551	192		23 990	25 530
Wurttemberg R, S & T	13 238	13 238	92 260	92 260						250 000	—		—	15 000
Belgium	PR 520; T 7 880	8 400	T 41 858; S 26 742	68 600	7 500 000	29 455	285	2350	8,7	76 500	—	—	—	25 000
Bulgaria	T 5 896; S 1 844; R 918	8 658	T 12 578; S 6 235	18 813	4 300 000	96 346	91	198	2,4	R *18 000; S& T 114 090	—; 165	37	—	—; 15 000
Denmark	T 3 634; S 1 200; P 3 200	8 034	T & S 22 600; P 51 000	73 600	2 800 000	40 384	206	1 080	9,0	S & T *140 000; P 60 000	315	14,0	—; —	—; 20 000
Iceland	T 1 263	1 263	3 193	3 193	85 000	104 785	12	30	2,5	*19 000	—	4,5	—	—
Gt. Britain	T 83 869; S 24 314; R 39 000	147 183	T 353 959; S 182 533	536 492	45 000 000	314 609	470	2 000	3,7	P *1 500 000; Staat 563 519	—; 20		—	—; 50 000
France	T 117 646; S 102 774; P 9 891; PR 21 908	252 219	T 606 618; S 464 174	1 070 792	39 252 000	536 464	470	2 150	4,5	S & T 3 249 991; P&B *450 000	330	12	—; —	—; 269 000
Greece	—; 8 155	8 155	T 15 580; S 1 114	16 694	2 632 000	63 606	125	255	2,0	*125 000	—	21	—	—
Italy	T 51 538; S 20 515; P 2 958; R 16 226	91 237	T 313 020; S 41 030; P 5 916	359 966	34 466 000	286 682	320	1 420	4,7	889 000; *700 000	350; —	21	46 076; —	66 578; —
Luxemburg	T 538; S 742; R 163	1 443	T 1 130; S 2 198; R 931	4 359	260 000	2 597	560	1 690	3,0	22 909	190	11	76	132
Montenegro	850	850		1 000	250 000	9 080	94	110	—	*12 000	—	21	—	—
Netherlands	T 7 526; S 2 995	10 521	T 36 884; S 66 308	103 192	5 950 000	33 080	320	3 120	9,8	154 737	690	38	—	15 000
Norway	T 9 158; S 6 901; R 4 473; P 13 146	33 678	T 18 917; S 42 400; R 9 107; P 25 141	95 565	2 400 000	322 986	105	300	2,8	412 536; *65 000	170; —	5,6	6 338; —	10 487; —
Austria	T 40 516; S 12 382; R 6 406	59 334	T 156 118; S 54 699; R 79 375	290 192	28 251 000	300 004	199	970	4,9	1 700 000	160	17	—	100 000
Bosnia-Herzegowina	T 3 231; S 673	3 904	T 7 374; S 673	8 047	1 900 000	51 028	77	153	2,0	61 403	130	31	—	—
Portugal	8 800	8 800	—	20 000	5 800 000	92 241	95	—	—	*135 000	—	43	—	—
Roumania	7 285	7 285	18 882	18 882	7 272 000	131 357	56	144	2,6	158 504	120	44	—	—
Russia with Siberia	T 199 502; S 28	199 530	T 705 752; S 1 033	706 785	150 000 000	5 003 840	26	127	3,5	*3 000 000	—	43	—	—
Finland	—	—	—	—	3 500 000	373 604	—	—	—	—	—	—	—	—
Sweden	T 9 318; S 18 203; R 10 468	37 989	T 32 220; S 126 140; R 27 695	186 055	5 556 000	447 864	85	415	4.9	570 000	328	10	—	30 000
Switzerland	T 6 838; S 14 000; P 2 027; —	22 865	T 21 735; S 48 448; P 4 052; R 12 889	87 124	3 715 000	41 419	552	2 110	3,8	S & T 525 133; P *30 000	166	6,7	—; —	—; 26 574
Servia	T 3 392; S 1 881; R 645	5 918	T 6 624; S 2 848; R 1 648	11 120	2 959 000	48 303	123	232	1,9	108 020	103	27	—	—
Spain	T 34 700; S 1 322; R 15 000	51022	T 83 453; S 2 644; R 30 000	116 097	20 500 000	504 551	101	230	2,3	318 118	375	65	20 000	40 000
Turkey	10 584	10 584	18 571	18 571	6 000 000	169 000	63	110	1,8	145 940	128	41	10 000	15 000
Hungary	T 25 050; S 20 787; —	45 837	T 91 989; S 107 089; R 51 634	250 712	21 255 000	324 851	142	770	5,5	1 034 047	245	20,5	96 761	150 572
Total in Round Numbers	—; —	1 362 135	—	5 930 801	466 500 000	9 868 000	140	612	4,4	*6 194 000; 16 728 000	—; 250	20	—; —	*4 700 000; 1 250 000

T = Telegraph. S = Telephone. R = Railways. P = Private. PR = Private Railways. * Estimated

Table No. 1. Pole and Wire Statistics of the Various Countries of Europe.

to 16 years; in higher valleys 15 to 25 years, and in the passes, even 20 to 25 years. Here the ground is very rocky and dry, and frozen, up to eight months. Chestnut lasts in lower parts about as well as larch, i.e., 14 years, in high parts up to 30 years. The total number of poles is about 525,000.

In the private lines are found, also, many Boucherie poles and some creosoted ones, especially kyanized poles, furnished partly by a Swiss firm and partly from Southern Germany. In general these poles have been satisfactory.

21. Servia. The insignificant development of the Servian railway system does not permit gathering the poles for preservative treatment at the one or two places, where plants are located. One is contented with charring oak poles on the butt end and painting the top. The average duration for oak is said to be five years. Even taking for granted that not the best wood is employed for the poles, this is so poor a record that the fault might be attributed to the charring of the butt end. It cannot be denied that the charring produces a small quantity of antiseptic substances (wood tar), yet the damage is greater, as the coal stratum formed thereby absorbs and retains humidity, so that the poles always are surrounded by a moist stratum, conducive to fungi. There are about 108,000 poles in the lines.

22. Spain. The total number of poles is about 300,000. Until the year 1907 only the Boucherie method was employed, being supplanted since that year more and more by full impregnation with creosote oil. Today over one-fourth of the poles in the lines are creosoted. The duration of the Boucherie poles is estimated to be 20 to 25 years, which seems rather high, compared with the results of neighboring France. At any rate, the pines furnished in 1905, from France, gave very bad results. Creosote oil impregnation has been very satisfactory, although the short space of time does not allow definite statements in figures. Where they are to be bought cheaply, untreated chestnut is inserted, taken only of best quality, and these have even proved far superior to Boucherie poles. Not only is their average duration about 25 years, but they are much thinner and lighter than pine poles and therefore cheaper and easier to be transported. The average number of wires on lines in Spain being 2.3, thin poles may be employed unhesitatingly. Their number is 35,000. Besides these poles, untreated fir and oak are used in those parts of the country where they grow.

23. Turkey. In the following report the entire system of the Asiatic and former African parts is comprised. Turkey has only telegraph lines, not a single telephone line, in either European or Asiatic provinces. Turkey has very poor forests, wherefore any wood fit for building is consumed by the inhabitants and for poles but very poor material is left. The poles are set untreated or partially painted with creosote oil, or charred at the butt end. The load of wires on the poles being small and large parts of the country being very dry, the average duration of poles, in spite of their mediocrity, is comparatively satisfactory. Preservation would not be practicable in general, the greater part of the lines, especially those in Arabia and Eastern Minor Asia being far from any railway. The average duration of pine (255,599—44 per cent. of all Turkish poles) is estimated to be 15 years; chestnut (38,631—6.6 per cent.) as high; juniper (37,731—6.5 per cent.), comprising also, cypress, etc., 10 years; oak (122,278—21 per cent.), 7 years; and poplar, in some far remote districts the only wood (81,626—14 per cent.), but two years; of 12,388 poles (2.1 per cent.) further reference was not to be had. The half way colonial conditions of the country caused an ample use of iron poles, which have highly satisfied the government. They form 25 per cent. of all the poles in Arabia, while in European Turkey only a few (515) have been inserted. The total is 33,588 (5.8 per cent.) iron poles.

The last year's loss amounted to 36,928 poles, of a total of 581,900 iron and wooden poles, i.e., 6.3 per cent., a number which, to be sure, is not high when compared with other European administrations and considering the difficult conditions.

24. Hungary has very lately begun the preservation of poles with antiseptic substances. The greater part of the poles, about 600,000, are untreated oak, the average duration of which is estimated at seven years, as in Turkey. Since 1880 Boucherie-treated poles have been used, amounting nowadays to a total of 280,000 and showing an average duration of eight years. This is less even than the Austrian number of 11.8 years and only one year longer than the duration of raw untreated oak poles. This miserable result has proved the contention that "the Boucherie method is not able to protect the poles sufficiently." (Haltenberger at the telegraph engineers' meeting at Paris.) Accordingly this method was entirely abandoned in 1908, and a creosote oil plant was erected at Püspökladany.

Hungary producing more fir than pine, the administration tried to find a method of treating fir satisfactorily. It succeeded by a peculiar punching of the poles by means of a machine invented expressly for the purpose. In 1911, for the first time, the total demand was supplied with fir treated in this way. In spite of the average depth of penetration of creosote oil into the wood being one inch, the amount of oil used could thereby be reduced to 7 pounds per cubic foot, while by means of the old method even 17 pounds of oil under pressure did not produce a depth above one-half inch. In order to ascertain whether this punching damaged the solidity, over 100 poles, from 20 to 35 feet in length, were broken. Inspection showed that there was not the least difference to be found between the untreated and the preserved, punched and unpunched poles. At a visit to the establishment, the writer was able to persuade himself personally of the extremely good penetration of the poles with oil. In accordance with request, a pole chosen at random was taken from the pile and cut in all directions.

In the last year 77,340 poles by this method were set and 73,233 untreated oak; 4,400 untreated oak poles and 52,710 Boucherie poles had to be removed on account of decay, i.e., 19 per cent. of the total amount of Boucherie poles and only 7.5 per cent. of the oak poles.

AMERICA.

25. The United States. Of the lines of the United States, 400,000 kilometers are carried by the telegraph companies and the Independent telephone companies, 400,000 kilometers by the Bell companies (American Telephone & Telegraph Co.), 200,000 kilometers by the Western Union Telegraph Co. and 200,000 kilometers by railway companies. Iron and armed concrete poles have been used by some railway companies and power transmission lines, but various opinions have been expressed regarding their value. The cost of providing them is very high and the maintenance requires great sums every year. As to armed concrete poles, one company reports a total failure, another reports considerable damage and some others give skeptical reports.

America, the land of the greatest iron industry of the world, clings to wooden poles as no other country. In former days there were no troubles as to the duration of wood, and such trouble arising occasionally, there was a simple remedy. To augment the duration, there were taken thicker poles which took longer to rot. Immense available supplies of wood and the extremely low prices made the quantity of wood a point of no importance, which, however, has changed of late. The forests have been diminished to such a serious extent that the United States now-a-days is not far from depending on Canada in this respect. For about 10 years the great companies, as a result of the activity of the United States Forest Department, have considered seriously the question of preservation of wood to obtain longer duration. The first preserved poles were set by the railway companies, part of which owned proper plants. Two of these companies used the Hasselmann process and proved a complete failure, four others used zinc chloride solutions, four the sublimate (kyanizing), a greater number creosote oil by the "open tank" process and some few a real full

cell or empty cell process with creosote oil. Records of the poles of these companies are wanting.

About 550,000 pieces of the 2,831,810 poles used in 1910 by the telephone companies were somehow "managed" (according to the American Wood Preservers' Association year book). The Western Union had 153,000 poles of its requirements of 571,250 poles provided with a creosote painting. The other companies, likewise, are, for the greater part, contented with this rather primitive proceeding and only pay attention to thoroughly drying the wood before the painting. Some few contractors have the poles, either wholly or only at the butt end, dipped into a bath of hot creosote oil from 10 minutes up to half an hour. Some, too, make use of two following baths of hot and cold oil. About 200,000 poles are subjected to these two processes (open tank and double tank methods). treated pine in Germany 8 shillings), it may be understood that preservation does not pay unless very cheap. About 66 per cent. of the newly set poles serve as substitutes for decayed ones and five per cent. as substitutes for broken ones, the rest being for new construction. Seventy per cent. of the poles are under 35 ft. in length.

26. Canada. Canada owns an extremely developed telephone system, the extent of which, however, cannot be given in exact figures, as the greater part is in private hands. Preservation is but little practiced. Iron poles are not employed; concrete poles are used in but small numbers. In the most remote districts, the wires of several lines have been fastened to living trees. The whole number of poles used for all purposes in the year 1912 was 608,556.

27. Mexico. The telegraph system has developed extra-

	Lines km.	Wires km.	Population	Area Sq. kilometer	Wires per line	Lines per Sq. kilometer	Wires per Sq. kilometer	No. of poles	Wires per pole	Pole per inhabitant	Annual loss of poles
AMERICA.											
United States	1,371,000	9,000,000	93,000,000	9,590,000	6.5	150	990	26,000,000	350	3.5	3,137,602
Mexico	37,197	78,391	15,000,000	1,987,201	2.1	19	39	487,739	160	31	20,000
Canada	T 66,000 / S 80,000	*274,000 / 300,000	6,000,000	9,700,000	4.0	18	70	*3,600,000	...	2	
Argentine Republic	R 35,000 / 56,679	R 100,000 / 169,142	6,900,000	2,950,000	3.0	19	58	805,479	210	8	
Bolivia	46,490	10,954	2,150,000	1,470,356	1.7	4.5	7.5	84,370	130	25	
Brazil	32,550	65,308	21,500,000	3,550,215	1.9	4	7.6	*450,000	...	..	
Chile	28,080	*60,000	3,400,000	753,000	...	37	...	*380,000	...	..	
Columbia.....	17,200	*25,000	4,450,000	1,129,298	...	15	...	*230,000	...	..	
Costa Rica.....	2,150	*3,000	350,000	48,410	...	45	...	*30,000	...	..	
Cuba	*10,000	*17,000	2,000,000	118,833	...	...	...	*140,000	...	..	
Ecuador	4,200	*7,000	1,300,000	307,243	...	14	...	*56,000	...	..	600,000
Guatemala.....	6,700	*9,000	2,000,000	113,030	...	59	...	*90,000	...	..	
Haiti	200	*300	1,600,000	28,676	...	7	...	*3,000	...	..	
Honduras	5,900	6,200	700,000	114,670	1.0	51	54	*80,000	...	..	
Nicaragua	4,600	7,100	510,000	135,000	1.5	34	53	*60,000	...	..	
Panama	183	*400	450,000	87,480	...	...	...	*3,000	...	..	
Paraguay	1,830	3,200	680,000	458,000	1.7	4	7	*25,000	...	..	
Peru	6,300	9,600	5,437,000	1,177,000	1.5	5.5	8.4	*85,000	...	..	
San Domingo	700	2,050	460,000	48,577	2.9	14	42	*10,000	...	..	
San Salvador.....	3,200	7,200	1,100,000	34,126	2.3	95	210	*45,000	...	..	
Uruguay	7,650	*15,000	1,100,000	186,925	...	41	...	*105,000	...	..	
Venezuela	7,600	*15,000	2,800,000	942,300	...	7.5	...	*100,000	...	..	
Total	1,792,000	10,200,000	173,000,000	39,448,000	6.0	45	250	32,800,000	320	5.6	3,730,000
AUSTRALIA.											
Australia	74,466	203,938	4,500,000	7,930,000	2.7	9.4	25	*1,100,000	...	..	*100,000
New Zealand.....	18,893	60,985	1,050,000	271,166	3.1	70	225	*270,000	...	..	.....

T = Telegraph. S = Telephone. R = Railway Lines. P = Private Lines. * Estimated.

Table No. 2. Pole and Wire Statistics of the Countries in North and South America and Australia.

As both have been introduced but recently, nothing can be said about the results. It was found by tests that the amount of oil absorbed by the wood was, in the average, 4 to 5 pounds per cubic foot of wood. The Boucherie method was also tried but proved a complete failure, as well as the painting with pure tar. Such poles decayed even faster than untreated ones. As preserving substances, further may be named: Petroleum, petroleum waste, crude oil and many mixtures of unknown compositions.

The following table gives, in round numbers, the annual insertion as well as the duration of untreated poles, according to the reports of the forest department and some of the large companies:

	Poles set in 1910.	Percentage of the total number set.	Average duration in years.
Cedar	1,620,000	63	12-16
Chestnut	450,000	18	12-14
Oak	175,000	7	8
Pine	125,000	5	7
Cypress			7
Douglas fir		2	5
Larch			5
Redwood	150,000	5	4
Fir (spruce)			4
Juniper			4
Hemlock fir.....			4
Total	2,520,000	100	

It is seen that untreated cedar lasts well. Its price being comparatively low (on the average 13 shillings a pole—ordinarily in the last year. Preservation is considered very important. Records and exact statements on the prolongation of duration gained thereby, however, are lacking. In round numbers 456,000 of the 487,739 poles are of wood. The poles are preserved either with creosote oil or zinc chlorid in a closed cylinder, or are simply painted with carbolineum. In the last years 2,544 impregnated poles, and 5,836 untreated poles were inserted. The loss amounted to about 19,000 pieces.

28. Bolivia. In the mountain districts iron poles are used; in the flat country, untreated wood. The latter, when seasoned well by heat, is extremely solid, as is proven by the rather low loss, which was, in the last year less than 1,000 poles, equal to 7.2 per cent.

29. Of the other South and Central American states but little is known. American cedar, of which merchants introduced great quantities, beside which, as much as possible, native woods, partly untreated and partly painted, are employed. The pole spacing is on an average 160 feet, the length scarcely exceeding 25 feet. The load is on an average, two wires. The price is reported for Cuba, as 60 cents for 25-foot poles of native hardwood. The requirements for poles of the different states, in spite of their great extensions, are comparatively small. Preservation therefor is not extensively carried on. Considering the necessity of shipping the poles to one place, and the small number being not sufficient to pay the cost for erection of plants, preservation would not be worth the price.

III. Australia.

30. Australia. The Australian administration possesses a

wood of rather unique quality in the trees of the eucalyptus species, wherefore artificial methods to prolong the duration are not practised, except that in a few districts, the butt end of the pole is charred or tarred. The medium duration of the different species is estimated:

Jarrah (Eucalyptus marginata).....25 years
Turpentine .....25 years
Blue gum .....15 years
Murray pine .....12 years

As is seen, the duration of Murray pine approaches that of German Larch or American cedar. The low duration of blue gum among the eucalyptus species, is striking, also proving true the unfavorable experiments made with this wood in Europe. In the thinly populated primeval forest districts, several hundred kilometers of line are attached to living trees. The white ant (termite) danger has, especially in the Northern districts, led to extensive employment of iron poles, which have proved very satisfactory in the rainless country. The greater part of them are iron tubes of the Siemens and Oppenheimer system. During the last year great number of old railway and tramway rails have been used. Considering the price of these latter, and of the tubes, they have been very satisfactory. More than in any other country, the white ants form a danger in Australia. This is the reason why in the tropic part of the North (North Territory and the North of Queensland and Western Australia), no wooden poles at all are employed.

In the South and in the central part of the country, it is the custom to paint all poles before setting them with an anti-termite preservative, or to punch a hole into the pole into which the solution is poured. The chief ingredient of most of the preservatives is, as far as the writer could examine them, arsenic. The termites not attacking hard, solid wood (grey box and ironbark are spared even without special protection), the soft sapwood is removed to one foot below and one foot above the ground, the result of which has proven satisfactory up to the present time. The statement that not only the hardness of the wood but also substances contained in it, form a protection, is supported by the observation that Murray pine, although soft but rich in essential oils, is nearly safe from termites.

(To be concluded.)

Queries on Theory and Practice

Weight of Copper Clad Wire.

Will you please furnish me through TELEPHONY, a table of the weight per mile, of different gages of copper clad wire?

The accompanying table furnished by the Duplex Metals Co., gives comparative characteristics of copper and copper clad wire, including the weights per mile of the various sizes. Data for sizes above No. 12 gage is not given as the company has

B. & S. Gauge Number	Weight per Mile		Approximate Elastic Limit		Approximate Breaking Weight		Ave. Resistance Int. Ohms per Mile at 75° F. Copper Clad				Copper
							30% Grade		40% Grade		
	Copper Clad	Copper	Copper Clad	Copper	Copper Clad	Copper	Max. 27%	Ave. 30%	Max. 35%	Ave. 40%	
0000	3140.	3378.	5000.	2770.	10000.	8310.	1.00	.90	.77	.67	.27
000	2490.	2678.	4150.	2190.	8300.	6580.	1.26	1.13	.97	.85	.34
	1975.	2124.	3420.	1740.	6850.	5226.	1.59	1.43	1.23	1.07	.43
0	1570.	1685.	2850.	1520.	5700.	4558.	2.	1.80	1.54	1.35	.54
1	1240.	1336.	2400.	1250.	4800.	3746.	2.55	2.30	1.97	1.72	.69
2	985.	1059.	2000.	1040.	4000.	3127.	3.19	2.87	2.46	2.15	.86
3	780.	840.1	1600.	830.	3200.	2480.	4.04	3.63	3.11	2.72	1.09
4	620.	666.3	1300.	650.	2600.	1967.	5.07	4.57	3.91	3.43	1.37
5	491.	528.2	1100.	520.	2200.	1559.	6.40	5.77	4.94	4.33	1.73
6	390.	419.0	900.	410.	1800.	1237.	8.07	7.26	6.23	5.45	2.18
7	309.	332.4	720.	330.	1450.	980.	10.22	9.20	7.88	6.90	2.76
8	245.	263.6	600.	260.	1200.	778.	12.92	11.63	9.97	8.73	3.49
9	194.	208.9	480.	210.	975.	617.	16.26	14.63	12.54	10.97	4.39
10	154.	165.8	400.	160.	800.	489.	20.33	18.30	15.68	13.72	5.49
11	122.	131.3	325.	130.	650.	388.	25.55	23.	19.71	17.25	6.90
12	97.	104.2	250.	100.	510.	307.	32.22	29.	24.85	21.75	8.70

Comparative Statistics, Copper and Copper Clad Wire.

practically withdrawn from the market, sizes 13 and 14. It is also confining itself to the 30 per cent. and 40 per cent. grade of copper clad wire.

Induction From 2,300 Volt Circuit.

Where running parallel to a 2,300-volt alternating current electric wire in a 20-foot alley, will our wires or cable be affected by induction? Our system is a magneto common return system. Our cable will be paralleled for about 1,800 feet. In crossing our cable at right angles clearing only about 18 inches, will it be affected?

The induction will certainly be severe, if your return wire is grounded, and it may be bad even if the return is not grounded. The crossing at right angles will not cause induction. Your only danger will be from physical contact which may kill someone. The parallel lead should be kept away from the power lead as far as possible. If your subscribers can stand a little noise, you may operate on opposite sides of the alley, especially if you can get consent to have your cross arms project over the back ends of the lots. This will bring the wires that much farther from the disturbing wires.

Telephone Cable on Same Poles With Power Wires.

We have in this city an alternating current distributing system for lights. The voltage on these circuits is 115-230, all wires being insulated. We contemplate installing a common battery telephone system, the plans of which call for about 25,000 ft. of telephone cable in sizes from 50-pairs down to 10-pairs. The cable will branch off in all directions from the central office.

Do you consider it feasible and advisable to install this cable on the same poles with the electric light wires? The cable must hang within 2⅓ feet of the electric light wires.

Which system would you recommend under these conditions, harmonic, divided circuit or pulsating ringing?

If your lines are in dry cable, well insulated throughout, with well balanced current supply apparatus, you can hang the telephone cables on the same poles with the electric light wires. For ringing party line bells stick to the ungrounded harmonic system.

Protection for Farm Lines.

On every tenth pole of our farmer line we have a ground wire. My plan is to tap this ground wire with a piece of No. 10 iron and knot it to each end of the arm, either on the side or top of the arm. At each pin a tap of No. 10 or No. 9 would be taken off and run about one inch above and one-half inch from the line wire; this would give one-half inch air gap. Tying the ground direct on the same insulator with line would give too much chance for leaks. I had planned to equip about two poles per mile in the above manner. Do you think this plan is practical?

The plan is all right and will do some good. There are instances in which the lightning actually strikes the line, and in these cases the proposed wires will materially protect the apparatus. But for induced surges—the kind which cause the majority of burn-outs—the half-inch air gap is too great to protect your apparatus. These induced surges are caused by lightning discharges which do not strike the line, but influence it enough to cause, momentarily, a high voltage on the line. It is usually not high enough to jump half an inch, or even a quarter of an inch, but it will burn out coils.

Proceedings Before Commissions, Courts and Councils

Discussions and Rulings of State Bodies Having Supervision of Telephone Companies, Decisions of Courts in Matters Affecting Public Relations of Utilities and Actions of City Councils Bearing Upon Franchises, Rates and Service

Cleveland Companies Ordered to Make Valuations.

The Ohio Public Utilities Commission, in response to a request by the Cleveland city council, has ordered the Cleveland Telephone Co. and the Cuyahoga Telephone Co. to begin immediately the physical valuation of their properties. The valuations are to be made as of April 1, 1914, and must be filed with the commission on or before October 1, 1914. In the meantime the companies must hold themselves in readiness to furnish the commission at any time before October 1 such partial inventories as may be completed.

The companies are ordered to schedule their properties under three heads: Land, physical property, overhead and good will. They are instructed to value their land on a basis of comparison with surrounding tracts owned by other companies or individuals. In addition to the present value of the companies' real estate, the inventory must state the original cost of such realty.

Under the head of physical property will be included wires, instruments, machinery and all property other than land, used in or useful to the operations of the companies. The inventory must state original cost, present value, depreciation and cost of reproduction.

The order issued by the commission is careful to list "overhead charges" and "good will" as "values claimed" by the companies. Overhead expenses include running expenses incurred during construction.

"Any value claimed for the possession of a contract to perform the public service" is also required by the commission's order.

Status of Mutual Companies in Ohio.

The Ohio Public Utilities Commission recently announced that it will not participate in any friendly suit to determine whether mutual telephone companies are under the jurisdiction of the commission. Representatives of commercial telephone companies had urged the commission to take this action.

Mutual companies are exempt from provisions of the utilities law because they are "organized not for profit." The claim had been made by representatives of other companies that few mutual companies are actually run "not for profit."

The attitude of the commission is based partially on two recent decisions of courts of appeals. In Morrow County the court of appeals made perpetual an injunction restraining the Marengo Mutual Telephone Co. from entering the village of Marengo with its lines, on the application of the Morrow County Telephone Co., unless the mutual company got permission from the utilities commission. It decided the burden of proof on the question of whether the mutual company actually existed for a profit rested on that company, but upheld the utility law's provision that companies not for profit cannot be regulated by the utilities commission.

In the Court of Appeals of Shelby County similar action was taken restraining the Farmers' Telephone Co. from entering Jackson Center, the field of the Jackson Center Telephone Co.

Mt. Auburn, Ill., Telephone Co. Granted Higher Rates.

The Mt. Auburn Telephone Co. of Mt. Auburn, Ill., applied to the Illinois Public Utilities Commission for authority to put in effect a new rate schedule providing higher rates for practically all classes of service. The applicant submitted a statement showing the purchase price paid by the present owner and the revenues and expenses of the plant. The commission has ruled that the income derived from the proposed schedule "to take care of depreciation and dividends would not exceed 14.8 per cent. of the original cost, and therefore could not be held excessive."

The commission further points out that the plant is very economically run. "An example of this is shown by the president's salary, which is $50 every three months. Surely, if the officers and managers are willing to donate their services, the stockholders of the company are entitled to that donation as against the subscribers." The commission approved the increase and the new rates are as follows: Business—private line, $18 per year; party line, $15 per year; city residence—private line, $15 per year; party line, $12 per year; rural, $15 per year (discount of 20 per cent. if paid quarterly in advance); and mutuals—switching $6.

General Order of Illinois Commission.

The Illinois Public Utilities Commission has issued the following general conference ruling:

This commission holds that any changes made by public utility in its rates, charges, and classifications for service since July 1, 1913, whereby the rates and charges exceed those in effect on said date, are illegal unless the same have been consented to by this Commission. If any change of rates and charges are deemed necessary, application should be made to this commission for its consent to make such change. And in case any public utility has made a change of its rates and charges whereby the same exceed those in force on July 1, 1913, such public utilities are ordered and directed to return to the rates and charges as of July 1, 1913, and to continue the same in force until this commission has given its consent to change the same.

It is further provided that an application for change in rates shall show the existing schedule and the schedule of proposed rates and charges and "where the rates and charges of a public utility in effect on July 1, 1913, are discriminatory, such public utility must forthwith apply to this commission for consent to change its schedule of rates and charges so as to comply with the law against discrimination in rates and charges."

New Municipal Systems for Canada.

From Fort Frances, Ont., Can., comes the news that La Vallee, in the Rainy River district, is starting a municipal system of telephones, and is fully organized, the plans having been passed by the council and approved by the Ontario Railway and Municipal Board. Emo, near Fort Frances, is also heading in the same direction but has not quite reached so advanced a stage. Brighton has reached the same stage as La Vallee, having bought out two private systems, the Porte system, and the poles of Austin's line in the municipality, which it is now reconstructing in parts, and constructing new portions. The Bell connection is obtained at Brighton, and the town is putting in its own switchboard at Orland. The plans for a municipal system in Otonabee township have also been approved by the Railway and Municipal Board, but the contracts have not yet been let.

The township of Goderich, where the Goderich Rural Telephone Co. is in operation, has started a municipal system, and some subscribers of the Goderich company became petitioners for the municipal system. Afterwards, however, they

said they did not want the municipal telephone, that they had thought it over and did not wish to pay the assessment, alleging that the contracts had been obtained by misrepresentation. Under the present telephone act that condition would not arise, because the municipality would buy out the local company. As to these petitioners, however, the question is now before the Ontario Railway & Municipal Board as to whether they can be required to pay the assessment whether they take the telephone or not.

At a recent meeting held in Otonabee township, Peterborough County, the residents decided to build a telephone system and contracts will be let at once.

The Ontario farmers are endeavoring to organize a co-operative society on lines similar to those of the Western Grain Growers. Anson Groh, of the Waterloo Municipal Telephone System, addressed them at a recent meeting in Toronto, on the subject of telephones, representing the municipal telephone system as the ideal co-operative system for the farmer.

Effort to Improve Party Line Service in Massachusetts.

As a result of general complaint by party line users of excessive use of such service by subscribers, the Public Service Commission of Massachusetts proposed to the New England Telephone & Telegraph Co. that some action should be considered which would tend to alleviate conditions. Following a conference with the board on the matter the company has agreed to appeal to telephone users for co-operation.

The company stated to the board that it does not appear practicable to limit conversations of subscribers on party lines to five minutes each, and that it is doubtful if any such rule could be enforced. A statement in the telephone directory and a printed circular mailed with bills will be made, with the approval of the board, requesting subscribers to limit their conversations to five minutes when others desire to use the line, and to give immediate right of way to emergency calls.

Wisconsin Supreme Court Upholds State Commission.

The supreme court of Wisconsin has handed down a ruling upholding the Wisconsin Railroad Commission in its contention that the Citizens Telephone Co., of Eau Claire, is not furnishing a local service to subscribers in that city within the meaning of the anti-duplication statute and cannot therefore issue stock as prayed for. The company appealed from the decision of the commission and Judge Stevens of the Dane county circuit court set aside the commission's ruling. The commission then appealed and is now upheld by the supreme court.

The company gives a long distance service, but its local service in Eau Claire, consisted, according to the testimony, of only 28 subscribers, 36 telephones and five pay stations, although it issued a local directory. The supreme court holds that this local service was in the nature of an occasional accommodation to the Eau Claire subscriber and was incidental to the rural and toll service of the company.

Wisconsin Physical Connection Case in May.

The action brought by the Wisconsin Telephone Co. to test the constitutionality of the law requiring physical connections between competing telephone lines will be called for trial in the Dane county circuit court of Wisconsin on May 18. Attorney General Walter Owen, who will appear for the state and the railroad commission, has set this date with the consent of the court, and has notified the telephone company. Joined as a defendant with the state and the commission is the La Crosse Telephone Co., which secured the first writ of physical connection. The law was passed by the legislature in 1911.

The case is brought by the Wisconsin Telephone Co. to enjoin the defendants from enforcing the physical connection law on the ground that the statute is unconstitutional, being in conflict with both the state and federal constitutions. The company also declares that the order of the commission demanding the connection is unreasonable and confiscatory.

Demise of Goldberg 5-Cent Bill in New York.

The Goldberg bill, designed to provide a maximum rate of 5 cents for a telephone call in New York City, which passed the Assembly, was buried in the Senate, although favorably reported upon by the senate committee on miscellaneous corporations. The bill was referred to the general orders calendar.

The Sanner bill, carrying an appropriation of $60,000 for an appraisal of the property of the New York Telephone Co. by the Public Service Commission, was lost in the Assembly by a vote of 66 to 57, after having passed the Senate.

Georgia Commissioners to Study Nebraska System.

Members of the Georgia Railroad Commission will visit Lincoln, Neb., soon to study the Nebraska Railroad Commission's telephone rate-making system.

Summary of State Commission Hearings and Rulings.

CALIFORNIA.

April 4: Order authorizing the Reedley Telephone Co. to adopt the new basis of toll rates made effective for the Pacific Telephone & Telegraph Co.

April 7: Order granting authority to the Southwestern Home Telephone Co. to issue collateral notes in the sum of $35,000 for the purpose of refunding notes which had been issued without the authority of the commission and which were, therefore, illegal.

CANADA.

March 31: Hearing held at Goderich, Ont., in reference to a dispute of four years' standing between two telephone systems in Colborne township. The bone of contention lay in the fact that 15 residents who signed a petition to have the township council of Colborne pass a by-law to enfranchise a telephone system then refused to have the telephones installed and to pay for them. As a result of another system, known as the Goderich Telephone System, coming into existence about that time, a war ensued, and it is alleged that over 30 miles in the township are duplicated with the wires of the Colborne municipal and the Goderich rural system.

KANSAS.

March 3: Order consenting that the telephone plants and property at Medicine Lodge and Protection, Kan., and territory tributary to each, of the Medicine Lodge Telephone Co., be sold and transferred to the Arkansas Valley Telephone Co., of Great Bend, Kan.

March 17: Order consenting that the telephone exchange and property used in connection therewith, of Oliver M Anderson, located in Lancaster, Kan., and vicinity, be sold to B. R. Hinchman.

March 17: Order authorizing the Burlingame Independent Telephone Co., of Burlingame, Kan., to file an amended schedule of rates providing for a charge of 20 cents per message for all toll line messages between Harveyville and Topeka, Kan.

March 20: Order consenting that the telephone plant and property and electric light plant and property of the Home Telephone & Electric Co., of Highland, Kan., be sold to Sarah F. Plain.

March 20: Order permitting the Russell Telephone Co. to abandon its practice of allowing subscribers to install and maintain extension sets at their own expense and to charge nothing for such service, and requiring the company to pay subscribers who have purchased such sets the full purchase price of the sets and authorizing the company to charge 50 cents per month for a business extension wall set and 25 cents a month for a residence extension wall set without bells, talking circuit only.

March 25: Order granting the American Telephone & Telegraph Co. a certificate of public convenience.

March 25: Order amending a contract between the Kansas Telephone & Telegraph Co. and the American Telephone & Telegraph Co. and permitting the latter company to operate thereunder.

March 30: Order permitting the Enterprise Telephone Co. to sell all its property to the United Telephone Co. for $36,000.

March 30: Order authorizing J. R. Cary to sell to L. C. Tibbets his telephone plant and property at Leoti, Kan.

April 6: Order consenting that F. R. Cooper, owner of the Longton Telephone Exchange, be permitted to sell to Crues & Walters three miles of telephone line.

April 6: Order permitting dismissal of the application of the Emporia Telephone Co. to change its rates at Emporia, Kan.

MICHIGAN.

May: Hearing on application of Michigan State Telephone Co. for metered service in Detroit.

NEBRASKA.

April: Hearing on application of the Lincoln Telephone & Telegraph Co. for authority to increase rates in York county.

April: Complaint by the Lawrence Telephone Co. that the Lincoln Telephone & Telegraph Co. refuses to recognize an agreement to route Lawrence company's messages between Lawrence and Lincoln by way of Hastings. Each company claims the right to route messages over its own lines. The Lawrence company owns a line from Lawrence to Pauline, while the Lincoln company owns a line from Hastings to Lawrence. There will be a hearing on the argument soon.

NEVADA.

March 26: Order requiring the Bell Telephone Co. of Nevada to reduce the cost of extension telephones from $1 to 50 cents per month. The complaint was made by the Nevada State Journal, at Reno.

OHIO.

April 8: Order authorizing the Gratiot & Brownsville Telephone Co. to lease to the Newark Telephone Co. all of its property for a rental of 6 per cent. per year on a valuation of $12,870.

April 9: Order No. 100 authorizing the Bloomer Home Telephone Co. to sell and transfer to the Greenville Home Telephone Co. all of its property, consisting of a telephone exchange at Bloomer, Miami County, with subscribers' lines extending into Miami, Darke and Shelby counties, together with toll connections and long distance service, and authorizing the Greenville company to purchase the property for $3,575.

April 9: Order No. 109 authorizing the Bradford Home Telephone Co. to sell and transfer to the Greenville Home Telephone Co. all of its property, consisting of a telephone exchange in Bradford, Miami County, with subscribers' lines extending into Miami and Darke counties, together with toll connections and long distance service and authorizing the Greenville Home Telephone Co. to pay $24,200 for the property.

SOUTH DAKOTA.

April 11: Hearing held at Dell Rapids on application of the Dell Rapids Telephone Co., in reference to the increase for switching service from $1.50 per year to 25 cents per month, per telephone, for switching farm lines.

April 15: Hearing held in reference to the rates, charges and practices of the Elm Spring & Wasta Telephone Co., of Wasta, Pennington County, S. D.

April 16: Hearing held at Rapid City, Pennington County, S. D., in reference to the rates, charges and practices of the Rapid Valley Telephone Co.

April 23: Hearing at Bradley, Clark County, S. D., regarding the rates, switching charges and practices of the Highland Telephone Co., the Bradley-Crocker Telephone Co., the Wallace Farmers Telephone Co., the York-Troy Telephone Co., the Conde Telephone Co., the Lilly Local Telephone Co., the Butler Telephone Co., the Olean Telephone Co., the Benton Telephone Co., and the Lilly-Lounsbury Telephone Co.

April 21: Hearing at Britton, Marshall County, in the matter of the investigation into the rates, charges and practices of the Social Telephone Co.

April 25: Hearing at Sisseton, Roberts County, in the matter of the application of the Dakota Central Telephone Co. for permission to change rural rental rates at Sisseton to $1.50 per month with a discount of 25 cents per month if paid at the office of the company quarterly in advance.

April 24: Hearing at Bristol in the matter of the complaint of the Dakota Central Telephone Co. pertaining to rural line connections with the Lynn Independent Telephone Co. and the Butler Telephone Co. The Dakota Central Telephone Co. recites that the two rural companies have been connected with the Bristol exchange upon a basis of 5 cents per inward message; that the commission has declared such connection charges unlawfully and discriminatory; and that the rural companies in question refuse to obey the order of the commission. The complainant requests that an investigation be made and that the companies be required to continue the connection and that the commission determine and fix a rate for such connection.

MISSOURI.

April 14: Order authorizing the Missouri & Kansas Telephone Co. to issue $7,500,000 in notes to refund a similar amount of notes held by the American Telegraph & Telephone Co.

OREGON.

April 10: Hearing held at Newberg in reference to the rates of the Newberg Telephone Co. The company applied for permission to make an increase of 50 cents on one-party and two-party business service and on one-party residence service and an increase of 25 cents on two-party and four-party residence service.

WISCONSIN.

April 21: Hearing on application of the Ettrick Telephone Co. for authority to raise rates.

April 21: Hearing at Madison on application of the West Menasha Telephone Co. for authority to raise rates.

April 21: Hearing at Madison in the case of J. A. Kestel et al. vs. the Marshfield Rural Telephone Co. and the Stratford Telephone Co.

Decision No. U.—263 ordering the Larsen Telephone Co. to extend its lines and furnish service at regular rates to the parties residing in the neighborhood of the original applicant in the case, if nine or more of such parties shall agree to take service; and that in case fewer than nine take the service, to extend its lines and charge those desiring service $45 for each party by which the number subscribing for service is less than nine, such advances to be repaid without interest for each new subscriber added within three years, up to the number for whom the advances were made by the original subscribers.

Decision No. U.—264 holding that although the Farmers' Union Telephone Co. was justified in discontinuing service to William Lemcke upon his refusal to pay his bill in full, the company is not justified, by the existence of his previous indebtedness, in refusing to give him present service if he is ready and willing to give the company reasonable security for the payment of future bills. The company was therefore ordered to restore service to complainant upon tender by him of payment in advance for a reasonable period at the rates charged, or upon the deposit by him of a sufficient sum of money to secure the prompt payment of rentals which may become due in future.

Decision No. U.—266 holding in the case brought by the Tri-State Telephone & Telegraph Co., that the St. Croix Farmers Mutual Telephone Co. violated the law when it extended service to a shareholder in the village of Grantsburg without first obtaining permission of the commission, but holding that there is no present violation of the law, since the service has been discontinued. The commission states that should any extension be made in future without the procedure proper under the statutes, it will become the duty of the commission to report such violations to the attorney-general for prosecution.

Decision No. U.—271 in the case brought by the Curtiss & Withee Telephone Co. ordering the Owen Telephone Co. to restore connections with the petitioner's lines in the village of Owen at terms prevailing prior to the disconnection of the lines until such time as a supplementary order, finally fixing terms for connection, is issued.

Decision No. U.—273 in reference to the investigation on motion of the commission, of the use of silent numbers by the Wisconsin Telephone Co. in Milwaukee, holding that the maintenance of silent telephone service cannot be regarded as an unjust discrimination on the part of the telephone company and that there is no other ground on which the practice can be condemned.

Decision No. U.—274 in the case of the Eagle Telephone Co. vs. the State Long Distance Telephone Co. and the Wisconsin Telephone Co. dismissing application of former company for restoration of physical connection between its lines and those of the State Long Distance company at Lauderdale Lake and the Elkhorn exchange of the latter company, and approving a plan of the latter company to extend its lines for a distance of one and one-half miles and connecting with such subscribers as desire the direct service of the Elkhorn exchange.

Decision No. U.—272 in regard to the application of the Farmers' Telephone Co. of Beetown for authority to increase its rates and for other relief, ordering the applicant to put into effect a schedule of rates determined by the commission, at such time as the applicant shall have made such changes in its management, organization, accounting methods and procedure as meet the requirements of the commission. The applicant is also authorized, upon the adoption of this schedule, to place on separate lines all telephones which are located within the city or village limits and are now connected to rural lines running directly into an exchange belonging entirely to the applicant. The order also provides for making metallic the trunk line between Platteville and Lancaster and provides for a toll charge of seven cents per call in place of free service.

Practical Subjects—Letters and Discussions

Letters To His Old Boss.

Bessemer Hump.

My Dear Pinder:

Say! If those Dobson girls show up here, they'll come back to your joint with every assurance that they've been somewhere. When that board of assessors gets through with me, I may have to borrow money, but I'll be a live one while those girls are here. They are just the kind that will be girls, 'til they are along about sixty.

Glad you are interested in the valuation questions. It's the finest thing I've come across yet in the telephone game. There are lots of people who think they know something about it, but none of them claim to know that they know a whole lot about it. You say you want the details of my experience. I'll do my best, but don't send an alienist out here. I'm perfectly sane though some of the things I shall write will not bear out the statement.

Well, Pinder, we tackled that pole item I mentioned in my last letter. Five of us—three board members, their attorney and Little Dudley. I never saw cigars lighted with more satisfaction, nor have I ever seen so large a percentage of them chewed to a frazzle.

The item on the assessor's sheet read like this:

..... poles at $10 each. Total.....

With a pencil poised at the first blank space, the chairman looked at me. I had a duplicate sheet.

"Five-twenty-seven," I said, and jotted it in.

He took a pull at his cigar and set down the figures, then another pull and moved his pencil to the total column. Although he has taken many a rejuvenating pull since, he hasn't set down any figures in the total column.

"Where do you get that ten dollar item?" I asked.

"Well," he explained, "we figure they was worth that. Poles is worth a lot of money now days."

I didn't see at first just what we were up against, and I want to say right here, I'm not an authority when it comes to laying down a rule for fixing a taxation value on poles in the line. Poles in a pile are all right. They are worth so much, but stick one of them in the ground for five years and it is an entirely different proposition. So I said carelessly:

"So you fellows are going to tax me on a basis of the value of poles taken from the stump last winter for poles which were cut six years ago and have set five years in the ground?" I didn't realize what a problem I'd handed out, until I saw him hesitate about answering and finally turn to the other members and ask:

"What do you think about it, fellows?"

"The poles are worth ten dollars apiece to you, ain't they?" one of the "fellows" asked.

"That is hardly a fair question," the lawyer interrupted. "The idea is to show them to be worth that, to the satisfaction of all concerned."

"As I understand it, this board is after the facts relating to my property. I'm here to give all the information I can. I'm in the telephone business. I'm supposed to know what my plant is worth, taken as a whole, and I believe I do, very nearly. But to pick out any one particular part and have me place a value on it, I'm almost as much at sea as you are. I'm willing to give you any assistance within my power. It looks to me as if you are up against something like this:

"Suppose one wheel of a buggy is lost. The buggy is practically worthless, still no one would say the wheel was worth the price of a new buggy.

"No more can you say that the pole back of the office, where all the wires and cable meet to enter the building, is equal in value to the whole plant, even though the exchange would be worth only its value in junk without it. I'm not saying ten dollars is either high or low. It may be just right, only I want to know how it was arrived at."

"That is about the figure the poles would cost you today," said the chairman.

"I can shade that price considerably, but we will accept your method of fixing the valuation. No, don't put down the total yet, for the thing isn't settled by a long ways."

"Well, what's wrong with it now?" he asked. "You've admitted it's right."

"He only accepted the method, and that tentatively," said the lawyer.

"Presuming," I went on, "that I can replace the 527 poles for ten dollars per pole, you will fix the taxation value at $5,270. In other words, you are going to require me to pay taxes on something I haven't got."

"But see here! Are not these poles doing the same work that new poles would? Answering the same purpose that is?"

"I'll admit that, but can't you see they are not of equal value. Now, if I had 527 new poles laying out there in a pile, what would you do about them?"

"Take them in at their market value."

"Very well. I haven't them here, but they are somewhere up in Michigan, or Canada, perhaps. After taking them into account, you would go ahead and value the old poles in the line at ten dollars, merely because they represented, or rather filled, the space that a new pole should fill. Now take it this way: Suppose I had 527 new poles all set, and a pile of 527 old ones I had removed."

"We'd list the new poles for what they cost and the old poles for what they were worth."

"Why are the old poles worth more in the line?"

"Because they are performing a necessary and valuable service," the lawyer said.

"Doesn't the question of how long it has performed that service and how long it will continue to do so, enter into the equation?"

"Well, perhaps it should to some extent," answered the lawyer. "But that is a question for the board to decide."

"Well, then," I said, "let's get down to what extent."

"What did those poles cost in the first place. Let's see if we can't get somewhere by starting from there," said the one member who had not previously spoken.

"Their book value, I believe, was fixed at four dollars."

"Book value? What does that mean?"

"It means the price at which they were taken into the construction account or plant value."

"Does that figure represent their actual cost?"

"Yes, as nearly as can be estimated."

"We won't accept any four dollars. That is ridiculous," said the chairman.

"I think so, too," I said. "You see, the life of a pole in the line is estimated at about ten years. So we must allow 40 cents a year for depreciation, which up to the present time amounts to two dollars. That still leaves two dollars' worth of pole or thereabouts."

That just about choked the chairman. Anyway he adjourned the meeting for a short recess.

Yours as ever,

Little Dudley.

Changing the Battery on Subscribers Sets.

I read in TELEPHONY some time ago about changing batteries on telephones where it was suggested that the batteries be changed once in six months on country lines and whenever needed in town. We have two small exchanges with nearly 1,000 telephones. In one town we go over the telephones and put in new batteries the first

week in June. In the other town we go over the telephons the first week in September, while in the country we cover the territory of the two exchanges the latter part of December.

We bring all of the batteries in and test them. All which test five amperes or over, we use on the pole changers in the two offices. All the others are thrown away. There are always some subscribers who use their telephones much more than others and their batteries will not last the whole year so we have to replace them.

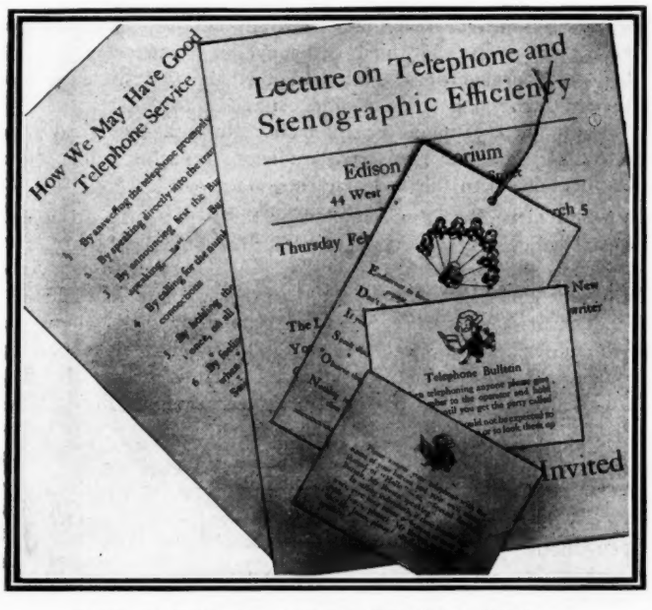
We keep a record of every telephone so we can tell just when the batteries were charged and the kind of cells that were used. By doing this, we know just where we are. It also keeps the automobile man from changing batteries, although we have never been troubled very much in that way. P. F. Garthwaite, superintendent,
Milton & Milton Junction Telephone Co.
Milton Junction, Wis.

New York Edison Company and Its Telephone Usage.

Believing that its customers can be best served and the company's business facilitated by the adoption of a universal method of answering the telephone, the management of the New York Edison Co. has compiled a set of telephone rules which have been distributed to every one of the 400 odd members of the contract and inspection department of the lighting company.

Four different cards have been circulated in all, two going to each individual employe, and one, a large card, going to the department managers and bureau heads. These last are put in a conspicuous place in each office, in an effort to keep the idea of good telephone service constantly before the employes. The fourth card was an advertising novelty in the form of a large tag to be hung above the employes' desks.

The first card sent to the employes contained the following "Please answer your telephone with the name of your bureau



Cards of Rules To Increase Telephone Efficiency.

and your own name, instead of Hello—as, Special service bureau, Mr. Brown speaking.

"In calling individuals, if their bureau answers, give your name or bureau at once, as, Mr. Jones, please, Mr. Brown speaking, or Mr. Jones, please, follow-up bureau speaking."

The second card, which followed soon after the first, gave brief instructions to employes when calling outside numbers, as follows:

"When telephoning anyone, please give the number to the operator and hold the wire until you get the party called. The operator should not be expected to remember numbers or to look them up."

The following general rules, under the heading "How We May Have Good Telephone Service," were printed on a large card and sent to the heads of the different bureaus with instructions to display them prominently on the bulletin board:

1. By answering the telephone promptly and pleasantly.
2. By speaking directly into the transmitter.
3. By announcing first the bureau, then the person calling.
4. By calling for the number, not the name, on outside communications.
5. By holding the line and being ready to speak at once on all connections.
6. By feeling responsible for a neighbor's telephone; when necessary answering— "———— bureau, Mr. Smith's telephone, Mr. Jones speaking."

And so, complete information and courteous treatment will convince our customers that we are always at their service.

All four cards are arranged with great care typographically, the always courteous Edison Man being conspicuous.

Following the circulation of these rules, arrangements were made with officials of the Edison company's commercial school for a special lecture for telephone operators and stenographers at the Edison Auditorium, in Twenty-seventh street. W. I. Oldaker, of the New York Telephone Co., was invited to deliver an address on "Seven Rules of Telephone Service." This lecture, with another lecture delivered at the same meeting, was subsequently published in the Edison Weekly, the lighting company's employes' journal.

Carbolineum Treatment in Germany.

Referring to an article appearing in your April 11, issue under the heading "A Study of the Use and Preservation of Wooden Poles," by Dr. Friedrich K. Moll, the author evidently is not aware that the Imperial Post & Telegraph Administration of the German Empire is using "Carbolineum," for the preservation of poles.

In evidence we quote herewith from a letter in our possession received in answer to inquiry addressed to Privy High Post Councillor Christiani, Berlin, Germany, as follows:

The Imperial Post & Telegraph Administration impregnates wooden telegraph poles as a protection against decay with heavy tar oils, sublimate of mercury or blue vitriol.

The latter copper solution is now used very little, because this method is far inferior in value than the other two treatments.

The compound on the market under the designation 'Carbolineum' is used on the lower part of the poles previously soaked with metallic salts (Hg Cl 2 and Cu W 4) as a greater protection against decay.

The butt end of these poles to a distance of about 50 cm above the ground line receives several brush coats of Carbolineum.

(Signed)
By Direction of the Secretary of State
Koehler.

As above stated the original German letter of which the above is a translation is on file at our office.

Yours very truly,
Carbolineum Wood Preserving Co.

Earthquake Does Freak Stunt at Dansville, N. Y.

A report from the exchange of the Federal Telephone & Telegraph Co., at Dansville, N. Y., states that the recent earthquake in the eastern part of the United States was noticed very distinctly by the operators on duty in the Dansville exchange, at that time. All the supervisory lamps on this board flashed three distinct times. This is a peculiar circumstance and goes to show that the telephone, like the seismograph, is efficient in the recording of earthquakes.

"Watchful Waiting" or War by Independent Telephony?

The Rate Question Reverting to Local Issues—Revision Upward—Money Borrowing Under Commission Supervision—Plan for Merging Public's and Companies' Interests—"Watchful Waiting" Versus War on the Bell—Separate A. T. & T. Co. and Western Electric

By Garrison Babcock

In past years the trade journals gave over an issue to optimistic forecasts by prominent men identified with the telephone industry who sought to place confidence in the minds of their readers. This practice was quite necessary in the days of promotion and rapid extension, and a general benefit was expected by the various authors who contributed. However, in these days of "watchful waiting" it would seem that the operating interests would welcome such an effort more than heretofore.

The promoter and manufacturer may not have the interesting viewpoint at this juncture, but the operator, who is responsible to his subscribers, stockholders and bondholders, is doubtless interested in reading anything which comes to him, along the line of instilling courage for the present and encouragement for the future; particularly so if the reader is involved in "competition." This, therefore, is an effort to set out some phases of our past, present and future which will encourage.

During the past few years we have observed the creation of many utility commissions and gradually the rate question has reverted back to local issues, and generally speaking, has been undergoing a revision upwards. This, perhaps, only applies to those localities where competition has subsided, but it is now safe for a local company to undertake an increase in a too low rate schedule, and simply because the utility law of your state has created fairer conditions for competition. The outlook for profitable rates, when other questions involved are disposed of, may be said to be very good. The public has shown a peaceable attitude towards commission rulings, upward revision, notwithstanding.

The Main Issues.

The main issues today have resolved themselves into two departments: Better service for the public and a better market for telephone securities, and one is absolutely dependent upon the other.

If you were in any other line of business and you found that your location was so good that your space was too small to accommodate your patrons, and your stock too limited to give satisfaction, and your capital too small to enlarge the former, you would think first: Where can I borrow some money?

Borrowing money for a telephone property is an old pastime. Nearly every possible form of finance has been interjected into the field and today, except for most minor requirements, any financial question must be passed upon by the public utilities commission. Applications to these bodies must include specific details of the uses for which moneys are to be expended, when derived from bond issues and increases of stock, and those requirements therefore become the ruling factors. Plant enlargements to accommodate waiting lists; replacements of worn out or obsolete equipment; and issues to cover mergers, are the direct causes, but in each case the approval of the commission is most affected by the results in service improvements to the public.

Where a community is poorly served by two plants, whose rates are too low to afford improvements, and the public is clamoring for a municipal plant, and the press becomes sarcastic, the issue of competition has served its day and we are confronted with an economic problem. The public wants a cure; the Boston stockholder wants security; the local stockholder the same; the commission wants the contestants to settle their difficulties and submit their program for consideration and approval, if it is fair to all concerned. The answer must, of course, be one that settles the question permanently and mere merger of the companies has proven only a greater burden to the public, and an embarrassment to the state commissions.

Merger of Company and Public Interests.

The most logical plan is therefore to merge the public in with the companies' interests, and the intimate relation of the telephone to the public would seem to make the public a partner without unusual inducements, such as are commonly required by bankers. A simple form of procedure would be for the companies to agree that a third company shall be formed which shall simply "operate" the traffic and own the switchboards and inter-connecting cables, while the public shall purchase their instruments and building wiring, as is required in electric service. This would all be under rules to be established by the public service commission, the rates to be based upon the costs involved with depreciation and interest on the plant equipment of the three companies.

The stock of the third or traffic company, might be sold to subscribers, or if the locality was municipally inclined, a city bond issue might be made available. However, that element is a local issue and while the public is willing to buy gas and water by the cubic foot, with a small profit in each foot, still there is a loud protest against increasing tax rates. In all probability the investing public would be the financier most willing to carry the third company, and particularly so if measured service were given and a small profit in each unit were shown.

If the Bell company is in reality through trying to take an unfair advantage of Independents, and the public, then this plan is up to the Independents.

A statement has been compiled by the A. T. & T. Co. which imparts the information that there are some less than 1,300 points in the United States where Bell and Independents are in direct competition, and less than 2,000 points in the Independent field, consisting of over 20,000 exchanges, where the Bell subscribers do not have access through inter-connecting contracts. Closely following this information comes the Bell proposed contract for the remaining Independents under Government compulsion. Before the ink had dried on this document, the district court of the United States for the district of Oregon, handled down a "settled decree" which clearly indicates to the layman that both the government (Attorney General) and the Bell interests agree that the Bell tactics of the past have been illegal. They have agreed to "unscramble the eggs."

"Watchful Waiting" or War?

The live situation confronting the "remaining" Independents seems to be one where either of the two horns of the dilemma must be chosen with concerted effort. One attitude might be represented by that statement which has echoed down through our history—"Millions for defense, but not one cent for Tribute," and the other attitude—"watchful waiting."

If all of these dual systems were in perfect physical, financial and profitable condition, regardless of the competition and

lack of long distance facilities, the Bell would sometime tire of the effort and either offer inducements with its toll lines, or some plan whereby it would abandon its plants to its successful rivals.

After several years of "watchful waiting" for the yard stick, which was promised at the "Blackstone meeting," we have read over the Bell annual report to stockholders and have seen the "Bell-connected" list grow until the issue is left to the "remaining" 1,200 to settle in the face of a "watchful waiting" attorney general and a Bell proposal, which plainly states: "We are victors, you are the spoils," if the requirements were interpreted from the Independent standpoint.

If the Oregon decision indicates that the Bell methods are at fault, and should require a dissolution, and long distance lines are common carriers, then it would seem that one general contract, insofar as commissions and rules for handling the traffic are concerned, should be enforced, regardless of whether the companies are "Associated" or "Independent."

There may be some sound reason, because of franchise differences and rates, that would make local inter-connections impractical, but there is no sound reason, acceptable to the public, which would justify a rule allowing universal service only, beyond a 50-mile zone. That requirement is purely a selfish one and at odds with all of the agitation and causes which have brought up the present issues. It reserves to the Bell company a broad opportunity to offer special privileges to those companies it cannot annihilate, and combined with the additional toll charge of ten cents, retains a preference to subscribers of associated companies.

Some light may be thrown upon the situation by reflecting the Bell company's standpoint. It is in terror of dissolution and government ownership.

To dissolve the telephone trust the A. T. & T. Co. will have to separate itself from the stock of all other operating companies and the Western Electric Co. Stripped of these properties to manipulate, there remains only the interstate toll business and royalties from patents with which to cover its enormous capitalization. At this point the government might conclude to take over the interstate telephones and telegraph lines, leaving only patent royalties.

If there is to be war then the most effective method would be to urge, insist upon and assist in, the dissolution of the trust. The local situations could then be met with equal opportunity, and where the Independent company is locally owned, it is probable that the advantage would be in its favor. In the course of time, state utilities commissions will have brought about fair conditions through their unwillingness to permit one community to be capitalized for the purpose of supplying free, or below-cost-service, in a community where competition exists. But that is a slow process when left to the public and Bell interests.

It would, therefore, seem that stability may be best secured for the remaining 2,000 Independent points, through active and aggressive association to move the Department of Justice to bring about the Bell dissolution; and further by insistence with all state utility boards that no revenues from one plant shall be used, either directly or indirectly, to finance service in another plant below cost.

It is probable that all of the Independent connected companies would lend their support to such a program, and the public and press of the country would, undoubtedly, approve that issue.

British Telephones Earn Surplus of 1.47 Per Cent.

Reports of the British telegraph service for the year ended March 31, 1913, and statements of account in regard to the telegraph and telephone services for that year have been published. The total capital authorized to be raised for telephone purposes at March 31, 1913, was £17,300,000, of which £13,690,000 was raised. For the purchase of the plant, etc., of the National Telephone Co. amounts of £3,000,000 and £7,000,000 in exchequer (telephone) 3 per cent. bonds were raised. The total expended on the trunk system was £6,212,129, and on the exchange system (including private wires) £17,664,835, making, with £500,000 for stores not yet allocated, a grand total of £24,376,964.

In the report of the telephone finance committee it is stated that the surplus on the year's working of the telephones was £303,343, equal to 1.47 per cent. on the capital, after allowing for working and administrative expenses, interest, depreciation (on the basis of the estimated effective life of the plant) and pension liability. The income of the post office telephones for the year was £7,848,097 (including £1,735,926 for advance subscriptions and sundry creditors brought forward, £46,889 collections by the National Telephone Co., and £6,065,282 subscriptions and rentals), less £2,039,020 for services to be rendered in 1913-14 and £17,089 payable to foreign administrations. The value of the services rendered to other government departments was £51,154, making a total income of £5,843,142.

After meeting administrative and operating expenses, maintenance of system, &c., the balance was £2,746,494, and after paying interest on exchequer loans, &c., and providing for depreciation (£1,391,197), the net balance was £303,343.

Report of Western Union for Calendar Year.

Although the Western Union Telegraph Co. made a report to its stockholders last October for the fiscal year ending June 30, 1913, the company has now issued a report for the year ending December 31, 1913, because of the change of the company's fiscal year to correspond with the calendar year.

The income account for the year ending December 31, 1913, shows total earnings of $45,783,512, an increase of $1,720,271, or 3.9 per cent. over the total earnings for the year ended December 31, 1912. The total operating expenses, including rent of leased lines, reconstruction, taxes, etc., amounted to $42,327,121, an increase of $1,738,021, or 4.2 per cent. To the balance of $3,456,391 is added the sum of $1,115,755 as income from loans and investments, including rentals and real estate. The payment of interest on the bonds of the company, amounting to $1,337,229, left a balance of $3,234,917, out of which the company paid 3 per cent. on its capital stock, or $3,234,917, leaving a net addition to surplus of $242,671.

The litigation between the American Speaking Telephone Co., et al., and the American Bell Telephone Co., on the contract of November 10, 1879, was finally concluded in the latter part of 1913, in favor of the former company, and the Western Union company received, as dividend, the sum of $3,230,545 on the shares of the American Speaking Telephone Co., which it owned and held as lessee of the Gold & Stock Telephone Co. This dividend represented deferred income, or a profit to the company, cumulating over a period of years, and was credited to surplus reserved and not to income for the year.

During the year the company made additions amounting to $3,761,496, including $2,194,891 for land line and ocean cable construction and equipment and $1,575,726 for real estate.

In regard to the future of the company President Theodore N. Vail says:

Many inquiries have been made as to the prospects of the company, either under any possible purchase by or competition of the government, or as a going concern operating independently of the American Telephone & Telegraph Co.

The relation between the American Telephone & Telegraph Co. and your company have always remained the same as between two entirely independent companies. The organizations of the two companies were entirely distinct and independent and, with the exception of the president and a minority of the directors, had no officers in common. All contracts and operating arrangements were such as two independent companies could enter into under the interpretations of the existing laws, and

the commercial interests of each company were carefully guarded, so that the so-called divorce of the two companies is being accomplished with very little confusion.

As to the government purchase or operation of the telegraphs: The property of the company cannot be taken without just compensation, that is, a full and proper equivalent for the property taken must be returned to the owners. In such a case, the shareholders should receive, as a minimum, far in excess of the present market value of the shares.

The other alternative which has been advanced, to take over the long-distance telephone lines and enter into competition with the existing telegraph lines for the purpose of destroying their business, is not only of so questionable a character as to be repudiated when its full significance is realized, but is so utterly impossible and unworkable from a practical point of view as to make it negligible. The owners of the securities of the Western Union may rest quietly, and not be scared into the sacrifice of their property. Headline prophecies should be read and regarded in the light of the results which have followed the headline prophecies of the past.

The technical department of the company has been at work in connection with that of the Bell System in the development of what might be termed mechanical transmission, and there is now in daily use rapid transmission apparatus which nearly, if not quite, quadruples the most effective yet devised, and is giving great results on the trunk lines where there is a concentrated business between large places. There is nothing as yet and not likely to be anything which will supersede the old key transmission of a scattered business distributed to many points on a local line.

Representation of the American Telephone & Telegraph Co. on the board of the Western Union Telegraph Co. was terminated at a meeting of the directors on April 8 when 13 directors resigned and six new men were elected. Of the resigning directors, eight were on the telephone company's board. The number of directors was reduced from 30 to 21. The following directors resigned: Union N. Bethel, Harris C. Fahnestock, Robert M. Gallaway, Edward J. Hall, Henry S. Howe, Edward T. Jeffery, Charles Lanier, Louis Cass Ledyard, John J. Mitchell, Harry B. Thayer, Theo. N. Vail, John I. Waterbury and Robert Winsor. These were elected: William H. Baker, Henry W. de Forest, William Fahnestock, Percy A. Rockefeller, Mortimer L. Schiff and William H. Truesdale.

At the meeting of the directors on April 15 Newcomb Carlton, who was for many years vice-president of the Western Union, was elected president of the company in place of Theodore N. Vail.

Under date of April 15 the Western Union Telegraph Co., in sending out its checks to stockholders covering a dividend of one per cent. on the capital stock for the quarter ended March 31, 1914, makes a statement of operating revenues and expenses for February, 1914, as compared with February, 1913.

This statement shows total operating revenues for February, 1914, to have been $6,754,712, as compared with $6,896,202 for February, 1913, a decrease of $141,490. The total operating expenses and taxes were $5,507,376, as compared with $5,654,316, a decrease of $146,940. This left an operating income of $1,247,336, as compared with $1,241,886, an increase of $5,450. In connection with this statement the company announces:

"In view of the change in classification of accounts prescribed by the Interstate Commerce Commission, effective January 1, 1914, the directors have decided that this statement and future quarterly statements submitted to the stockholders at the time dividend checks are forwarded, shall show the latest available results of actual operation, and that the practice of submitting partly estimated quarterly earnings shall hereafter be discontinued."

Financing of Bell Subsidiaries.

New York bankers have purchased $30,000,000 two year 5 per cent. notes of the subsidiary companies of the American Telephone & Telegraph Co. The notes have been authorizd by the various state commissions where necessary and are distributed as follows:

Iowa Telephone Co.	$ 2,500,000
Cumberland Tel. & Tel. Co.	6,000,000
Nebraska Telephone Co.	4,000,000
Missouri & Kansas Tel. Co.	7,500,000
Northwestern Tel. Exchange Co.	7,500,000
Cleveland Telephone Co.	2,500,000
Total	$30,000,000

The amount mentioned for the Northwestern Telephone Exchange Co. was placed abroad last week, the bulk of the issue in sterling form. The application of the Cleveland Telephone Co. for authorization of the $2,500,000 is now before the Ohio Public Utilities Commission. This last issue is bought subject to the approval of the Ohio commission. All of these notes are indorsed by the American Telephone & Telegraph Co.

To a large extent the notes are being distributed to investors in the territory in which each company respectively operates.

American Telephone Earnings for Quarter.

The American Telephone & Telegraph Co. reports for three months ending March 31, 1914, as follows:

		Increase.
Total earnings	$11,564,003	$347,762
Expenses	1,330,572	112,070
Net earnings	10,233,431	235,692
Deduct. interest	2,048,669	237,039
Balance	8,184,761	*1,347
Dividends	6,892,550	110,944
Balance	1,292,211	*112,291

*Decrease.

Condensed Report of Central District Telephone Co.

The Central District Telephone Co. has made the following condensed statement to the New York Stock Exchange for the year ended December 31, 1913:

Gross	$6,063,324
Net after taxes	1,262,352
Charges	251,227
Surplus	1,001,126
Dividends	910,000
Balance	101,126

Earnings of Keystone Telephone Co.

The Keystone Telephone Co., of Philadelphia, has issued the following comparative statement of earnings:

	For Month Ended		For Three Months Ended	
	Mar. 31, 1914	Year Previous	Mar. 31, 1914	Year Previous
Gross earnings	$108,386	$103,450	$323,644	$310,363
Operating expenses and taxes.	54,411	53,565	160,532	158,352
Net earnings	53,975	49,885	163,112	152,011
Less interest charges	25,128	25,159	78,348	75,937
Net surplus	28,847	24,726	84,764	76,074

Bell Will Require No Financing For 18 Months.

At the recent annual meeting of the American Telephone & Telegraph Co., at New York City, President Vail told the stockholders that no new financing would be necessary before the first half of 1916. He said arrangements had been made by some of the associated companies to finance themselves for the immediate future and to repay some of the money advanced by the parent company.

Indiana Tax Board Hearing Protests.

Indiana telephone companies having protests to make against valuations for taxation made against their property by the state tax board are being heard at Indianapolis April 6 to 16 inclusive.

Trade Papers—Their Appeal and Power

By ELBERT HUBBARD

The world is made up of two classes—the routiners and the pioneers. The former class are the smug self-satisfied folks who carry caution to excess. "Form A" and "Schedule B; Class III" is their rubric; and red tape is their phylactery. They are the cause of inefficient efforts to eliminate inefficiency. That is to say, they are a drag upon the wheels of progress.

Whilst perhaps it is true that the American business man is in too big a hurry to attend to detail, and while it may also be true that we may leave our margins too big and untrimmed, still there is no useful purpose served in a too slavish allegiance to moth-eaten, rust-worn rules and regulations. When a man satisfies himself that his name plate—"John Jones—Merchant"—is all that is necessary to get business ("for everybody knows that the Jones' have been in the business five generations"), he is in the chrysalis state, he is in his cocoon. Also he is in his coffin, for he is a dead one. Routine killed him. He lacked imagination and the blessing of anticipation. Imagination and anticipation are the double cylinder, expansion engine of humanity.

Our huge liners as they cross the ocean, ever have a man in the "crow's nest." He's on the lookout. And upon his wide-awake, alert sight, depends much of the safety of the ship, cargo, and human freight. To him every object, that enters his vision is full of meaning and is duly noted, reported and recorded by the officers.

The simile seems to be to be especially happy as applied to the editorial department of trade and class papers, of which we have such a splendid representation in this country. Nowhere in journalism is there a finer array of talent, than is to be found in the columns of these informative and trade reflecting papers. There is absent that flippancy and flummery of the cheap newspaper. Instead, the trade papers are full of facts that are throbbing with pulsing life and vigor. There are to be read articles that have the saving literary savor, the salt of common sense, and the tabasco of criticism.

The trade paper is the happy medium between the "excrutiatingly funny" comic section of our newspapers and those magazines for mummies that are wrapped in a most humorous sadness. The trade paper treats of its subjects in a manner that is exhaustive, but not exhausting, comprehensive yet concise. There is more in the power of timely suggestion than most of us dream of. And the value of these papers to many people is not only in the actual articles written, but because of the cycle of thought it occasions—the mind images it gives—the breadth of life it breathes into the crude creations of their imagination.

The trade paper crystallizes thought for us. It presents to us mental pabulum in cubes and tablets. No longer do we need search laboriously for the meat of the subject, it is right there, served in plenty and garnished with truth and accuracy. The editorial department is not made up of Gratianos—whose reasons were like two grains of wheat in a bushel of chaff, and when found not worth the search.

The trade paper is a true source of inspiration and power, and as an antidote for declining business, as a tonic for flagging zeal, for ennui or laissez faire, it is worth "a guinea a copy."

Inspiration without preparation is useless. But the preparation must be clear and defined or the creation will lack dignity, purpose and service. And inspiration comes only from the beautiful. Love is a by-product of Art; and inspiration is a by-product of work.

The trade paper caters to the specific needs of its subscribers, and in so doing, entertains and demonstrates the beneficence of co-operation. Co-operation is the fulcrum of future success—social, commercial, national and international.

The trade papers believe in this companionship, this helpfulness and mutuality. And in their well-edited, well-written columns, is to be found the incentive to vigorous effort, unselfishness and success.

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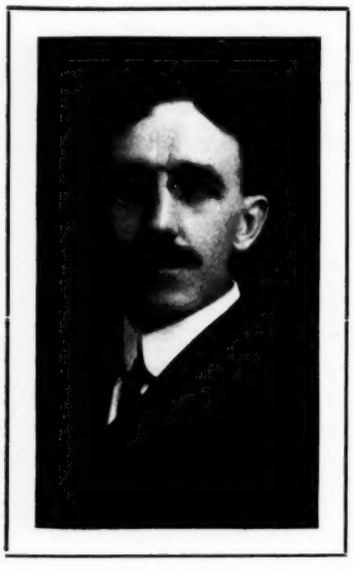
From Factory and Salesroom

Conventions: Missouri, Kansas City, May 6, 7; Tri-State, Jackson, Tenn., May 19, 20; Railway Telegraph Superintendents, New Orleans, May 19, 20, 21 and 22

Allen C. Morse in New McMeen & Miller Office in Cleveland.

The firm of McMeen & Miller, which for more than ten years has been conducting a general engineering practice, principally in telephony, has opened a new office at 407 Electric Building, Cleveland, Ohio, in order to take care of the increasing activity in telephony in Ohio and adjacent territory. Allen C. Morse, who has for many years been engaged in telephone engineering work, has been chosen as the resident engineer and manager of this new office, which will co-operate with the Chicago office of the firm in the general conduct of its business.



Allen C. Morse.

Mr. Morse is a native of Cleveland and has had about 20 years of engineering practice. He received his education in the public and university schools of that city, and in the Case School of Applied Science. For about five years after leaving college, he was engaged in civil engineering work in its various branches. His telephone experience began in 1898, when he entered the employ of the Reserve Construction Co. (Everett-Moore Syndicate), then engaged in the building of Independent telephone plants in many of the principal cities in Ohio. While so employed he had charge of the engineering and construction of a number of important exchanges in Ohio, including those at Mansfield, Findlay, Massillon, and a number of other places.

The association with the Everett-Moore Syndicate terminated late in 1901, and Mr. Morse then engaged in miscellaneous telephone and civil engineering work. In 1905 he became engineer of the Federal Telephone Co., in charge of the maintenance and construction work of the Independent telephone properties at Findlay, Fostoria, Youngstown, Canton, Alliance, Massillon, Lancaster, Zanesville, and the Columbiana county towns. In 1906, he was also made engineer of the United States Telephone Co., retaining his duties for the Federal Telephone Co. as well. In 1907, Mr. Morse was given additional duties as chief engineer of the Cuyahoga Telephone Co. Gradually he relinquished his duties in the other companies and was soon devoting his whole time to the Cuyahoga company.

While so engaged he made a development study of Cleveland and later planned and built the Princeton exchange of the Cuyahoga company. When the Ohio Independent properties passed into the hands of J. P. Morgan & Co. in 1909, Mr. Morse severed his connection with the Cuyahoga company and accepted a position as first deputy to the city treasurer of Cleveland, continuing in that position until the end of his term in December, 1912. Since that time, until he joined the McMeen & Miller forces, he has been conducting a general consulting and constructing telephone practice in Cleveland.

Mr. Morse has devoted much attention to systems of accounting of public service corporations, and to the making of appraisals. He has also operated a number of companies, the plants of which he constructed, and has thus had experience not only in the designing and building of plants, but in their operation and in the establishment of plant records and systems of accounting.

In its Cleveland office, McMeen & Miller will continue to serve, not only public service corporations, but municipalities and commissions, as may be required. Particular attention will be paid to the rehabilitation of plants, the making of appraisals, the establishment of proper systems of records, and to any other work in which they may properly serve the interests of clients.

Branch Offices of the Brach Supply Co.

The L. S. Brach Supply Co., New York, has concluded arrangements with the Railroad Signal Supply Co., Hackney building, St. Paul, Minn., to handle the following items of its line: Automatic flagmen, lightning arresters (vacuum and non-air gap), hydro-grounds, annunciator contacts, switch rods, pinlocks and bushings, and relay testing sets. Samples of some of the material will be on display at this office. The territory of the Railroad Signal Supply Co. includes St. Paul, Minneapolis, Duluth and Winnipeg.

The Brach company also announces the removal of its Chicago office from the Karpen building to the ninth floor of the Lytton building, where an exhibit of automatic flagmen, signal and telephone accessories will be maintained.

The Matthews Telefault.

A unique method has been adopted by W. N. Matthews & Brother, 3777 Forest Park Boulevard, St. Louis, Mo., to gain new friends for the Matthews Telefault. The company has published a shadowgraph view fully 15 ins. square in the center of a 32-in. x 22-in. poster, which gives a true picture of the 1914 model of Matthews telefault, with receiver and head band and No. 1 differential exploring coil. Accompanying this large reproduction is an offer to send one of the instruments to any telephone or cable using company in the United States for 10 days' free trial. On the reverse side of the poster are published a number of letters relating some of the experiences of users of the Matthews telefault.

Telephone Improvement Company to Reorganize.

A plan for the reorganization of the Telephone Improvement Co., of Chicago, and the operation of the factory of the North Electric Co., for the completion of contracts is reported to be practically assured. Actively engaged in the reorganization of the company are Jas. R. Garfield, D. J. Cable, Hon. F. C. Stevens, C. H. North and Garrison Babcock.

Electrical Show in Chicago in November.

Preparations are under way for Chicago's 1914 Electrical Show which will be held under the direction of the Electrical Trades Exposition Co., at the Coliseum from October 31 to November 14. Chicago has not had an electrical show since 1911, the officers of the exposition company believing that six shows in as many consecutive years had satisfied the interest of the general public and that with a lapse of two or three years the old-time interest in an exposition of the character could again be created.

All of the shows given in Chicago were successes, but the measure of success was not so great with the later

shows as compared with the earlier ones. "Consequently it was deemed advisable to give the public a rest" said Manager Homer E. Niesz, "and we came to the conclusion a few days ago that the time is now ripe, from every standpoint, for another big show. In former years we have held the show in January, running into more or less stormy weather which had a tendency to cut down the attendance; and we also found that four or five shows of other characters that preceded us in the Coliseum had a tendency to take the novelty away from Coliseum shows that came in later in the season. So we decided to change the date and get in early. The Electrical Show will be one of the first of the winter season and we expect to make it such a big and attractive exhibition of trade products that the building will be crowded for the entire two weeks."

Manager Niesz has not sent out a formal announcement of the 1914 show to the trade as it is his intention to give the exhibitors of the 1911 show an option until May 1st on the original space they occupied in the last show. Electrical Show offices have been opened at 546 Commercial National Bank Building, Chicago, where diagrams and other information may be secured by prospective exhibitors.

A Missouri Valley Deluge.

Noah was the first man to leave any definite record of what occurs when the waters let loose. Well, it happened again!

Down in Kansas City, Kan., where the Missouri River makes up its mind to go home to father and cuts across the state to join the "Father of Waters," another kind of Watters is covering the territory for the Ericsson Mfg. Co., of Buffalo, N. Y. He pronounces it just the same as if he didn't slip in an extra "t" to make folks wonder whether to spell it with one or two. However, the extra "t" is there and that is not the only difference. He is a

Howard Watters.

charged Watters—charged with enthusiasm for the Ericsson telephones and switchboards that he sells—surcharged with energy and steam.

It will be good news to all the telephone people in Kansas, Missouri, Oklahoma and Arkansas to hear that Howard Watters is again on the job for Ericsson, traveling out of Kansas City and carrying the full Ericsson line of steel telephones, wood telephones, "Handmikes," etc. He is not only calling to see them, but is keeping an office and stockroom in Kansas City, where he can take care of immediate requirements from a local stock. His headquarters are at 643 Minnesota Ave., Kansas City, Kan.

Proposed New Development In Kansas.

The United Telephone Co., of Abilene, Kan., recently filed application with the Kansas Public Utilities Commission, for permission to buy the telephone system at Phillipsburg, which also includes the plant and property at Kirwin. The Abilene plant was recently consolidated with the Salina Telephone Co., of Salina and given permission to increase its capital stock to $1,500,000.

The Phillipsburg company has about 75 miles of lines with about 400 subscribers on the Phillipsburg exchange and about 200 subscribers at Kirwin. If the sale and consolidation of these lines is permitted the United company will build a line west from Phillpsburg to Norton, and another company will build from Oberlin to Norton, thus giving long distance service to that section which is now denied this privilege. The United Telephone Co. now has lines to Stockton, and in the event the sale is made, a line will be built north from Stockton to Phillipsburg. By these new lines, Rooks, Phillips, Norton and Decatur counties will be given up-to-date telephone service.

Work to Begin on Automatic System in Davenport, Ia.

E. H. Moulton, of Minneapolis, president, and Bryan H. Osborne, of Pennsylvania, secretary, of the Tri-City Automatic Telephone Co. have signed a bond of $25,000 as a guarantee that the automatic telephone system for Davenport, Iowa, will be installed and the service in operation within a year. A large amount of equipment has already been purchased and work will soon be under way. It is stated the company will dig 173 miles of trench for conduits in Davenport, Rock Island and Moline. The three cities will be connected by means of a cable which will be laid across the Mississippi River.

The company has 300 telephones in operation in Rock Island, and a similar number, it is stated, in Moline. By the terms of the Davenport ordinance 4,500 telephones must be in operation in that city before patrons may be charged for the service. Present plans call for the construction of a $45,000 building in Davenport. L. W. Stanton is general manager of the company.

Paragraphs.

W. N. Matthews & Brother, of St. Louis, have issued a circular calling attention to the Matthews 2-bolt guy clamp and to the fact that its use eliminates the beating up of guy wire because the clamp is drawn up to the pole by means of a chain lever hooked into the eye of the clamp. It is stated the clamp can be installed in less than five minutes and that tests have proved that it will hold a greater strain than five 3-bolt clamps.

Congressman Lewis Explains Position.

Congressman David J. Lewis, of Maryland, known as the "father of the parcel post in America," took occasion in a recent address in Cincinnati to correct an impression that he is an advocate of the national ownership of the telegraph lines. This was said immediately following a reference to the conjecture of some that the development of wireless telegraphy would in a few years render the wireless telegraph about so much junk, and, hence, the telegraph company would not be averse to selling out to the government.

Mr. Lewis said Germany was using the same wires for telephone and telegraph messages, and what he proposed was the postalization of only the telephone lines and their additional utilization for telegraph messages. The telegraph messages per capita had for ten years been stationary in this country, despite increase in business. In England the number of telegraph messages had for ten years shown a decline in the aggregate. He had no apprehension that wireless telegraphy would ever displace the telephone, which conveyed the human voice and allowed immediate "back talk."

In the Rural Line Districts

Our telephone plant has again changed owners. Now it is in the hands of Lee Jameson of Tiosa and we are in hopes that it will be a paying investment for Mr. Jameson. Mr. Jameson is a practical electrician and he has been very busy getting the telephones about town in working order and now we are having excellent service.—Claypool News, Ft. Wayne (Ind.) Gazette.

The telephone system about town was changed the first of the week, connections being made with the new underground cable to replace the old overhead wires. The central office was closed Monday afternoon and most of the day Tuesday, and all the lines connected with it were out of commission. The "Two Mary's," the operators, took advantage of the unusual opportunity to enjoy a little visit together outside the office.—Fontanelle (Ia.) Observer.

The telephone company refused to pay Bob Berry a big price for his property and let him keep it. They built the line around his lot.—Schuyler Co. Herald, Rushville, Ill.

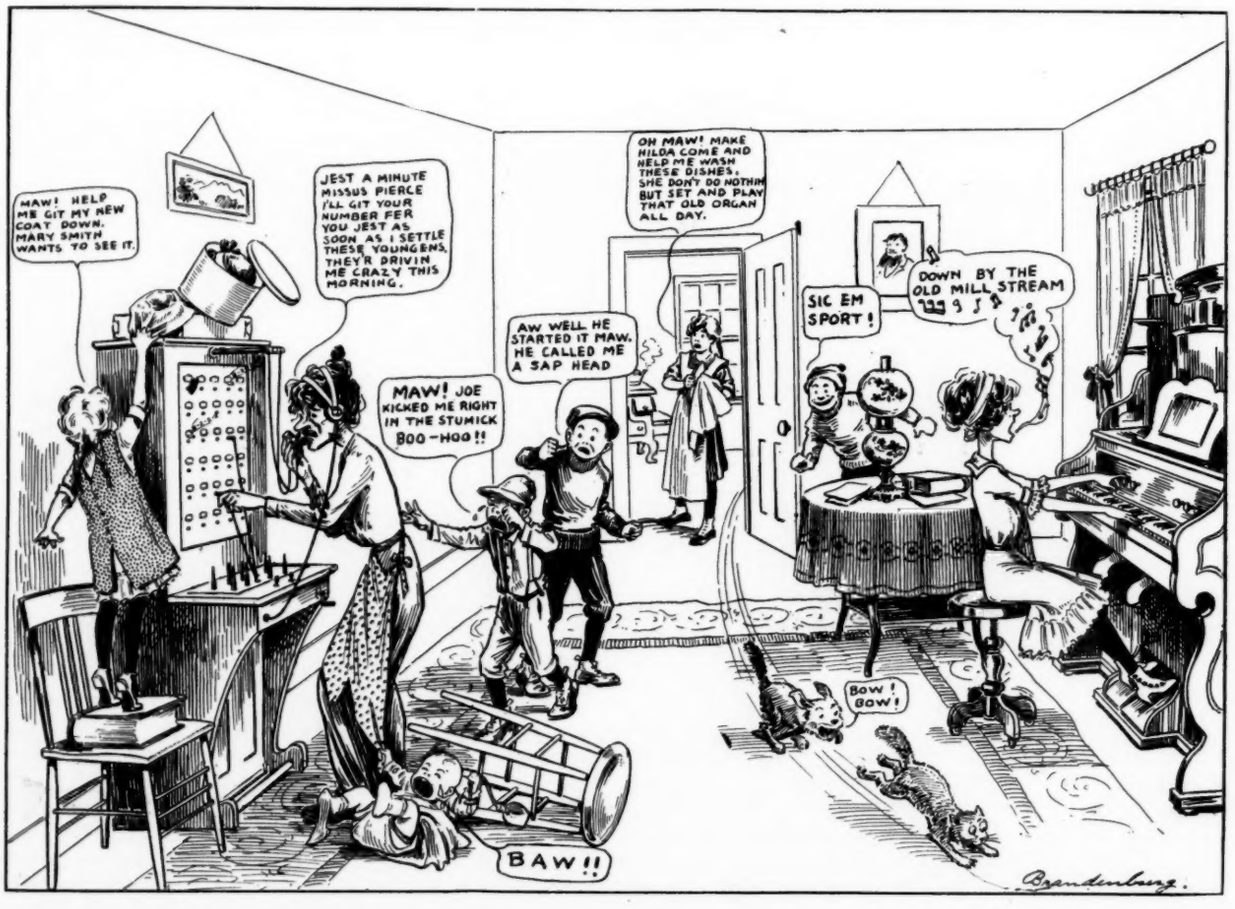
On Tuesday and Wednesday nights some 200 Central Union telephone girls from Peoria and surrounding towns are going out to the Webb farm for a chicken supper. The first delegation will go Tuesday night and the next contingent the night following. If, therefore, the "hello" business is a little "bum" on the nights in question the impatient business man must remember that he was young once himself and liked to go riding with telephone girls. Some of them like it yet.—Peoria (Ill.) Star.

The Pumpkin Hollow telephone people are making a new line which terminates in Woodburn instead of Smyrna as heretofore.—East Concord Item, Osceola (Ia.) Sentinel.

Dynamite was used before the rains last week to dig telephone pole holes here. The ground was unusually hard and so many shovel and pick handles were broken that it was decided to resort to the explosive. G. R. Eaton, foreman of construction for the telephone company, did the work. Half a pound of dynamite was used for each hole. The only trouble with the method was that it was hard to find enough dirt to tamp about the poles after they had been set.—Maryville Dispatch, St. Joe (Mo.) Gazette.

The Grand Ridge branch of the Streator telephone company will soon have a new trouble and repair man, Joe Jacobs, who has been employed in that capacity for several years, has severed his connection with the company and Arthur Lowman, of Ottawa, will take his place.—Grand Ridge Item, Ottawa (Ill.) Free-Trader.

How long is the telephone company going to operate in Elmore without revising its directory? In looking over the miserable excuse of a directory one can hardly find half of the patrons who patronize this public utility concern. It is a disgrace to the people of this community, and it is a wonder how patiently they endure it.—Elmore (Minn.) [illegible]


MAW! HELP ME GIT MY NEW COAT DOWN. MARY SMITH WANTS TO SEE IT.
JEST A MINUTE MISSUS PIERCE I'LL GIT YOUR NUMBER FER YOU JEST AS SOON AS I SETTLE THESE YOUNGENS. THEY'R DRIVIN ME CRAZY THIS MORNING.
OH MAW! MAKE HILDA COME AND HELP ME WASH THESE DISHES. SHE DON'T DO NOTHIN BUT SET AND PLAY THAT OLD ORGAN ALL DAY.
AW WELL HE STARTED IT MAW. HE CALLED ME A SAP HEAD
MAW! JOE KICKED ME RIGHT IN THE STUMICK BOO-HOO!!
SIC EM SPORT!
DOWN BY THE OLD MILL STREAM
BOW! BOW!
BAW!!
Brandenburg.

On account of her home duties, Mrs. June Boggus has resigned as operator for the Peoples Telephone Co. She has a large family and feels that she cannot properly look after their welfare, and at the same time render efficient service to the telephone subscribers. The switchboard will be moved next week from the Boggus home to a room over Daniel's store, which will be used exclusively for a telephone central office. A new operator has not yet been appointed.—Middleridge (Tenn.) Sentinel.

Condensed News Reports

Officers of Companies are Earnestly Requested to Forward Us Promptly All Financial and Other Statements as Soon as Issued, and Any Items of Interest as to Their Plants and Systems

Personal.

P. R. HEMPHILL has been made local manager of the Orange Home Telephone Co., at Orange, Tex.

GEORGE MATTOX has resigned his position as manager of the Southwestern Telegraph & Telephone Co., at Orange, Tex., effective May 1.

E. C. SALISBURY, local commercial manager of the Lincoln Telephone & Telegraph Co., at Wymore, Neb., for the past two years, has resigned.

J. BROOKE BOYLE, solicitor for the Chesapeake & Potomac Telephone Co., has been promoted to district manager, with headquarters at Cumberland, Md.

GRANVILLE SHARP, formerly assistant superintendent of the Chicago Telephone Co., has accepted the position of plant manager for the Michigan State Telephone Co., at Detroit.

E. G. KNEEPER has resigned the management of the Linton, Ind., exchange of the New Home Telephone Co., on account of ill health. J. A. Parrish has been appointed to succeed him.

HENRY J. BENDINGER, for the past 14 years connected with the Wisconsin Telephone Co., in various capacities, has resigned his position as district manager at Janesville, Wis., to practice law. Mr. Bendinger entered the employ of the Wisconsin company at the age of 15; he devoted his spare time to the study of law and completed the law course in Marquette University, passing the state bar examination with credit. A dinner in his honor was recently given by his fellow employes, who presented him with a handsome mahogany office desk.

HARRY A. RHODES, former chief engineer of the old Colorado Telephone Co., at Denver, has been appointed chief engineer to the telephone interests operating in the Republic of Brazil, South America. Mr. Rhodes was one of the earliest pioneers in the telephone business, starting with the Missouri & Kansas company in 1886, going to the Colorado company in 1889. He was prominently identified with the development of many important improvements in telephone circuits and apparatus during the earlier years of the business, notably the phantom circuit, lightning arresters, and the telephone repeater. Some years ago Mr. Rhodes was awarded a patent on a telephone repeater. His future headquarters will be in Rio Janeiro.

Obituary.

FRANK B. KNIGHT, for nearly 30 years connected with the Southwestern Telegraph & Telephone Co., died recently at his home in Dallas, Tex., at the age of 65. Mr. Knight was a member of the Telephone Pioneers of America and was one of the most widely known telephone men in the state. At the time of his retirement from service with the Southwestern company, he held the position of special agent.

New Companies and Incorporations.

WILMINGTON, DEL.—The Polyacousticon Co. has been incorporated with $1,000,000 capital stock to own, erect and acquire by purchase and to develop telegraph and telephone lines anywhere in the United States excepting in Delaware. The incorporators are: Chas. B. Bishop, C. L. Jacobs, and H. W. Davis, all of Wilmington.

THOMASVILLE, GA.—The Consolidated Telephone & Telegraph Co. has filed articles of incorporation with a capital stock of $250,000, $100,000 of which has already been paid in. This company has bought up 10 telephone plants located at Moultrie, Barwick, Pavo, Boston, Coolidge, Norman Park, Whigham, Newton, Smithville and Leesburg, with a total of 1,400 telephones and 300 miles of toll and farm line. R. L. Stewart will be general manager of the new company. The directors are as follows: R. L. Stewart, W. A. Pringle, W. H. Rockwell, James Watt and Theo. Titus.

HARBOR BEACH, MICH.—Articles of incorporation have been filed by the Croswell Telephone Co. with $25,000 capital stock. The incorporators are: H. B. Ryan, Chas. H. Frame and Harry D. Ferris, all of Harbor Beach.

MUNITH, MICH.—The Munith Telephone Co. has been incorporated with $1,000 capital stock by R. V. Olk, Frank W. Olds and L. C. Hart, all of Munith.

FERGUS FALLS, MINN.—The Dane Prairie-Buse Telephone Co. has filed articles of incorporation with $2,000 capital stock. The officers of the company are as follows: President, Ernest A. Rassnow; vice-president, John J. Fossen; secretary and treasurer, Albert Bjorguan, all of Fergus Falls.

INTERNATIONAL FALLS, MINN.—The Border Telephone Co. has been incorporated with $10.000 capital stock by A. H. Hanson, Albert Schonsby and others. The company proposes to build a line from Loman to Clementson, a total distance of 45 miles.

FLOWEREE, MONT.—Articles of incorporation have been filed by the Floweree Mutual Telephone Co. with $20,000 capital stock. The incorporators are: E. E. Castor, Geo. Evers, R. E. Baker and W. I. Trackwell, all of Floweree, Mont.

POTOMAC, MONT.—Articles of incorporation have been filed by the Potomac Telephone Co. with $10,000 capital stock. The directors are M. D. Flynn, H. M. Dengler and C. A Smith, of Potomac; H. W. Martin, of Sunset, and W. L. Stockton, of Clearwater.

GAGE, OKLA.—The Southeastern Telephone Co. has been incorporated with $2,000 capital stock by A. Luthi, L. E. Mass, Rose Luthi and M. Moss, all of Gage.

HYDRO, OKLA.—Articles of incorporation have been filed by the Pleasant Ridge Telephone Co. with $750 capital stock. The incorporators are J. H. Payne, L. C. Murray and E. P. Simmons, all of Hydro, R. F. D. 4.

OKLAHOMA CITY, OKLA.—The South Suburban Telephone Co. has been incorporated with $300 capital stock by I. N. Needham, H. G. Little, I. G. Damhold, E. Needham, J. W. Sage and W. M. Little, all of Oklahoma City, R. F. D. 7.

ROFF, OKLA.—The Trout Telephone Co. has been incorporated with $400 capital stock by J. C. Farmers, A. C. Nabors and J. V. Crass, all of this town.

GARRETSON, S. D.—The Red Rock Telephone Co. has filed articles of incorporation with $600 capital stock. The incorporators are W. W. Weick, Harry DeSchepper and J. T. F. Burns, all of Garretson.

HIGHMORE, S. D.—Articles of incorporation have been filed by the Douglas Valley Telephone Co. with $4,500 capital stock. The incorporators are Philip Burheim, Fred Traver and A. Schellhase.

ROCKERVILLE, S. D.—The Rockerville Telephone Co. has been incorporated with $1,000 capital stock by Benjamin Rush, D. R. Morris and Ralph M. Peabody, all of Rockerville.

WESSINGTON SPRINGS, S. D.—Articles of incorporation have been filed by the Jerauld County Farmers' Telephone Co. with $30,000 capital stock. The incorporators are J. D. Powell, S. E. Miller, W. C. Grieves, O. W. Morehead and L. Hildebrand, all of Wessington Springs.

FLOYD, VA.—The Citizens' Mutual Telephone Co. has been incorporated with $10,000 capital stock. The officers and directors of the company are as follows: President, J. P. Williams; vice-president, J. E. Burwell; secretary and treasurer, L. C. Hylton; directors, R. B. Morgan and W. H. Poff, all of Floyd, Va.

MEADOWDALE, WASH.—The Sound Telephone & Telegraph Co. has been incorporated with $5,000 capital stock by W. D. Cleveland, J. R. Cleveland and Lewis Andrews, all of Meadowdale.

OUTLOOK, WASH.—Incorporation papers have been filed by the Outlook Telephone Co. with $5,010 capital stock. The incorporators are H. C. Davis and W. F. Nass, of Granger, R. F. D. 1; A. C. Turner, W. M. Barnes and J. E. O'Brien, of Outlook.

BOSCOBEL, WIS.—The Pleasant Valley Telephone Co. has filed articles of incorporation with $500 capital stock. The incorporators are A. E. Anderson, J. V. Staskal and G. K. Roen, all of Boscobel.

Construction.

OAKLAND, CAL.—The Pacific Telephone & Telegraph Co. has perfected plans for the erection of a new three-story exchange building in this city, the cost of which is estimated at $36,000.

POCATELLO, IDAHO.—The Mountain States Telephone & Telegraph Co. has appropriated $85,000 for the erection of a new two or three-story exchange building in this city.

DETROIT, MICH.—The directors of the Michigan State Telephone Co. have appropriated $350,000 for improvements and extensions, a large part of the money to be spent in Detroit.

CRAWFORD, NEB.—The Crawford Telephone Co. is making preparations to construct a line from Crawford to Lusk, Wyo., which will entail an expenditure of about $15,000.

OMAHA, NEB.—Plans have been completed for the erection of two new exchange buildings in this city by the Nebraska Telephone Co., and work will be commenced June 1. Each building will cost about $20,000, and after completion will have $80,000 worth of new equipment installed in it.

FREDERICK, OKLA.—The Frederick Telephone Co. has just completed the installation of improvements to its plant, costing $8,000. The improvements include several miles of new cable and a central energy switchboard.

LORAIN, OHIO.—Extensive improvements are being made to the exchange of the Amherst Telephone Co. The operating room is being enlarged and a long distance board is being installed.

NORMAN, OKLA.—The Pioneer Telephone & Telegraph Co. is completing plans for rebuilding its plant in this city.

TULSA, OKLA.—Improvements entailing the expenditure of approximately $100,000 will be installed in this city by the Pioneer Telephone & Telegraph Co. within the next six months.

SHAMOKIN, PA.—E. B. Raup, local manager of the Bell Telephone Co. of Pennsylvania, has announced that $11,000 will be spent in improving the company's toll lines between Sunbury, Shamokin and Mt. Carmel.

Underground.

COLUMBIA, S. C.—The Southern Bell Telephone & Telegraph Co. has been required by the city council to place its wires underground in many of the principal streets of the city.

Financial.

LANARK, ILL.—The Lanark Mutual Telephone Co. has filed an amendment to its articles of incorporation, increasing its capital stock from $12,000 to $15,000.

NASHVILLE, ILL.—The Washington County Mutual Telephone Co. has increased its capital stock from $5,010 to $10,020.

EMPIRE, MICH.—The Empire & Platte Telephone Co. has been granted permission to sell $2,000 worth of capital stock.

MANCELONA, MICH.—The West Antrim Telephone Co. has been authorized to issue $1,005 worth of capital stock.

MARSHALL, MICH.—The Michigan Railroad Commission has granted the application of the Marshall & Lee Telephone Co. for permission to sell $350 worth of capital stock.

ULYSSES, NEB.—At the annual meeting of the Ulysses Independent Telephone Co. an 8 per cent. dividend was declared.

REITZ, PA.—The Central Telephone Co. has filed an amendment to its articles of incorporation, increasing its capital stock from $10,000 to $25,000. John H. Reitz is president of the company.

Elections.

CANTON, ILL.—The Canton Home Telephone Co. held its annual meeting recently and re-elected all the directors and officers for the ensuing year. The directors are: G. W. Chandler, S. A. Drake, G. W. Eyerly, M. J. Gorman, W. E. Lynch, F. W. Plattenburg, W. D. Plattenburg, M. W. Rafferty and Lewis Thompson. The officers are: M. J. Gorman, president; G. W. Chandler, vice-president; W. D. Plattenburg, treasurer; P. P. Anderson, secretary and manager.

COLCHESTER, ILL.—At the annual meeting of the Colchester Farmers Telephone Co. the officers for the ensuing year were elected as follows: President, Chas. Walker; vice-president, Lee Hunt; secretary, Aggazie Null; treasurer, Frank Hunt.

BUSSEY, IOWA.—The Bussey Mutual Telephone Co. held its annual meeting recently and elected the following officers for the coming year: R. W. Ayres, president; E. C. McClure, secretary; John Sims, treasurer. The following, together with the officers, constitute the board of directors: J. W. Trotter, E. A. Johnson and M. H. Duffy.

IRETON, IOWA.—At a recent meeting of the Ireton Rural Teelphone Co. the old officers were all re-elected: F. E. McNally, president; D. G. Johnson, vice-president; R. W. Younnie secretary and treasurer.

OWOSSO, MICH.—At the annual meeting of the Union Telephone Co. the following officers were elected for the ensuing year: President, C. T. Babcock, St. Johns; vice-president, S. Wagar, Edmore; treasurer, E. O. Dewey, Owosso; secretary, L. L. Conn, Owosso; board of directors, C. T. Babcock, St. Johns; E. S. Wagar, Edmore; E. O. Dewey, Owosso; W. A. Bahlke, Alma; J. H. Fildew, Pontiac; F. G. Thiers, Mt. Pleasant; J. T. Millman, St. Johns; J. E. Gerow, Ovid; T. Kincaid, Warrenville, Ohio; J. H. Whitney, St. Louis; A. M. Bentley, Owosso; and J. B. Crawford, Ithaca.

FAIRMONT, MINN.—The Silver Lake Farmers' Telephone Co. held its annual meeting recently and elected officers and directors for the ensuing year as follows: President, E. Maday; vice-president, T. Borowiak; secretary, G. H. Guy; treasurer, E. Nawrocki; directors, M. Pytleski, S. Maday and L. Charnecki.

LANDISBURG, PA.—At the annual meeting of the Perry County Telephone & Telegraph Co. the following officers and directors were elected for the ensuing year: President and general manager, R. J. Makibbin; vice-president, J. M. Moose; secretary, J. C. Waggoner; treasurer, J. R. Wilson; assistant manager, J. J. Wolff; directors, R. J. Makibbin, Green Park, J. M. Moose, Andersonburg, J. M. Stambaugh, Elliottsburg, J. C. Waggoner, Landisburg and J. J. Wolff, of Loysville. A semi-annual dividend of 3 per cent. was declared.

WAITSBURG, WASH.—The stockholders of the Rural Telephone Co. have elected the following officers and directors for the ensuing year: President, M. H. Lund; vice-president, W. D. Wallace; secretary-treasurer, Harvey Price; directors, Frank Keiser, Fred Bachman, Emory McCoron, Harvey Price and M. H. Land.

APPLETON, WIS.—At the annual meeting of the Apple Creek Farmers' Telephone Co., F. A. Ziegler was elected president; Herman Wickert, vice-president; C. W. Schroeder, secretary, and Albert Luebke, treasurer.

GREENLEAF, WIS.—The Wrightstown Farmers' Mutual Telephone Co. held its annual meeting recently and elected the following officers for the ensuing year: President, Jacob Brittnacher; vice-president, John Brittnacher; secretary, Jacob Vandevoort; treasurer, Henry Baumgartner. The officers, together with Albert Schaeuble and Geo. Baeten, constitute the board of directors.

MILWAUKEE, WIS.—At the annual meeting of the Wisconsin Telephone Co. the following were elected members of the board of directors for the ensuing year: Otto H. Falk, Julius O. Frank, Oliver C. Fuller, Edward A. Uhrig and H. O. Seymour, Milwaukee; Union N. Bethell and Theodore N. Vail, New York; B. E. Sunny, Alonzo Burt and Byron L. Smith, Chicago, and C. Jay French, Boston.

Franchise.

SAN DIEGO, CAL.—The Pacific Telephone & Telegraph Co. has filed an application for a franchise to operate in this city.

MEMPHIS, TENN.—The Memphis Automatic Telephone Co. has made application to the city commissioners for a new 30-year franchise. The company proposes to buy out the Memphis Telephone Co. and reorganize under the name of the Memphis Automatic Telephone Co. with an authorized capitalization of $2,000,000, and spend $500,000 in extensions.

BROWNWOOD, TEX.—The city council has granted a franchise to the Brown Telephone & Telegraph Co. for the construction and operation of a telephone exchange in this city.

CHEHALIS, WASH.—The Bunker Creek Rural Telephone Co. and M. E. Coffman have made application to the Lewis county commissioners for a franchise to construct telephone lines along certain roads in the western part of the county. The Crego Telephone Co. has also applied for a franchise to erect lines southwest of Chehalis.

Miscellaneous.

LITTLE ROCK, ARK.—The Tate Mill & Little Rock Telephone Co. has filed notice of dissolution.

CUTHBERT, GA.—The properties of the Cotton Belt Telephone & Telegraph Co. were sold at public auction and were purchased by bondholders for the sum of $49,000. The company operates exchanges at Shellman, Fort Gaines, Edison, Carnegie and other points, and in addition numerous toll and long distance lines. The new management purposes to further improve the property and extend the service and system.

BRISTOL, IND.—The Bristol Telephone Co. has just completed the construction of a line to Bonneyville, Ind., and now has connection to Middlebury, with an all metallic circuit.

RENSSELAER, IND.—A. L. Clark, of Morocco, Ind., and W. L. Bott, of Star City, Ind., have purchased controlling stock in the Jasper County Telephone Co.

ELYRIA, OHIO.—The Elyria Telephone Co. is about to replace its present long distance toll board with one which is double the capacity of the present board.